NOTICE OF INTENT TO CONDUCT MINOR COAL EXPLORATION DUGOUT CANYON MINE

UTAH STATE COAL LEASE ML-42648

March 2009

Ark Land Company
A Subsidiary of Arch Coal, Inc.

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NOTICE OF INTENT TO CONDUCT MINOR COAL EXPLORATION

Utah State Coal Lease ML-42648,

R645-200. Coal Exploration: Introduction

Ark Land Company (a subsidiary of Arch Coal Inc.) is submitting this Notice of Intent (NOI) to Conduct Minor Coal Exploration on behalf of Canyon Fuel Company, LLC – Dugout Canyon Mine to the Utah Division of Oil, Gas and Mining (Division) in order to obtain approval to conduct coal exploration and reclamation activities in 2009. One hole is planned, to be drilled utilizing rubber-tired drilling rigs to obtain spot cores of the coal seams and associated strata. The drill hole will be drilled on private surface owned by Canyon Fuel Company and the coal ownership is leased through Utah State Coal Lease (ML-42648). The drill site is located within the Mining Permit Boundary of the Dugout Canyon Mine (Permit number C/007/039). This NOI follows the format of the applicable parts of Division rules (R645-200 through R645-203) regarding the exploration of coal.

Ark Land Company has provided four copies of the NOI to the Division for review and distribution to other agencies. An additional copy has been delivered to the Price Field office.

R645-200-100. Scope (Minor Coal Exploration)

122. Minor Coal Exploration

Ark Land Company intends to drill in order to verify the thickness, perceived mining conditions and quality of the Gilson Coal Seam in Utah State Coal Lease ML-42648. Less than 250 tons of coal will be removed during this drilling program. Ark Land is hereby filing a NOI to Conduct Minor Coal Exploration under the requirements of R645-201-200.

R-645-200-200. Responsibilities

210. Responsibility to Comply with Regulations

Ark Land Company, Canyon Fuel Company and Dugout Canyon Mine will comply with the requirements of R645-200 through R645-303.

220. Responsibility of the Division to Review and Reply

Rules and regulations state that the Division will review and reply to this NOI within 15 days of submission.

230. Responsibility of the Division to Coordinate with Other Agencies

Rules and regulations state that the Division will coordinate review of this NOI with the other appropriate government agencies (i.e., SITLA, BLM, OSM, etc.).

R645-201. Coal Exploration: Requirements for Exploration Approval

R645-201-100. Responsibilities for Coal Exploration Plan Review

110. Coal Exploration Plan Review, Responsibility of the Division

The lands upon which exploration will be conducted are a state lease issued to Ark Land Company and, therefore not subject to 43 CFR Parts 3480-3487. Therefore, the exploration plan review will be the responsibility of the Division.

120. Requirements of 43 CFR 3480-3487.

As stated in R645-201-110 above, this requirement is not applicable.

130. Division Responsibility to Coordinate with Other Agencies.

This NOI will be submitted to the Division as the lead agency for review and approval.

R645-201-200. Notices of Intention to Conduct Minor Coal Exploration.

210. Division Review Requirement.

Ark Land Company is submitting a notice of intention to Conduct Minor Coal Exploration where removal of 250 tons or less of coal is planned.

220. Required Applicant Information.

221. Name, Address and Telephone Number of Applicant

Ark Land Company
C/o Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542
(Main Phone) 435-637-6360

The applicant is the same as the operator of the proposed exploration plan. Correspondence regarding this exploration plan should be addressed to:

Wade Robinson
Mine Geologist
Ark Land Company
C/o Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542
(Office Phone) 435-613-2830

222. Name, Address and Telephone of Applicant's Representative

The name, address and telephone number of the representative of the applicant who will be present during and be responsible for conducting the exploration is:

Wade Robinson
Mine Geologist
Ark Land Company
C/o Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542
(Office Phone) 435-613-2830
(Cell Phone) 303-478-4133

At times a consulting geologist may act as representative of the applicant. The Division will be notified of changes regarding the representatives in charge of the exploration drilling program.

223. Description of Exploration Area

The exploration area is contained within the Dugout Canyon Mine permit boundary and is located approximately 20 miles northeast of the town of Wellington, Carbon County, Utah (Figure 1). Drilling will occur within specific portions of State Coal Lease ML 42648 (Appendix B). The legal description of the leases is as follows:

State Coal Lease ML-42648
T.13 S., R 12 E., SLB&M
Sec. 8: E/2;
Sec. 10: S/2;
Sec. 11: S/2;
Sec. 14: All;
Sec. 15: All;
Sec. 17: NE/4, E/2SW/4, SE/4;
Sec. 20: E/2NW/4, SW/4NW/4, N/2NE/4;
Sec. 21: N/2NW/4, NE/4;
Sec. 22: N/2, N/2S/2;
Sec. 23: W/2NW/4.
Containing 3,640 acres, more or less

The proposed exploration hole is located north of Pace Canyon in Section 14 in T12S, R13E. Figure 2 provides the location of exploration drill site and access routes. Heavy Equipment access is via a county road through Clark Valley east of Wellington, herein called the Clark Valley Road. A well-maintained dirt road referred to as the Pace Canyon Road connects the Clark Valley Road to the exploration area. A second access will be the Dugout Canyon Road, which is used to access the Dugout mine site. Existing drilling access routes will receive minor grading and localized repairs as needed. Vehicles associated with a degasification drilling program may share the roads with exploration drilling vehicles and coal trucks when the Dugout Canyon Road is used.

The elevation in the area ranges from 7,200 feet in the south along the base of the Book

Cliffs to 8,700 feet in the north atop the high mesas. The terrain is rugged with relatively gently sloping mesas bounded by the steep slopes of the Book Cliffs. Relatively deep and narrow valleys bisect the highlands and drain southward away from the Book Cliffs. The major drainages in the area are Pace Creek, Rock Creek and Dugout Creek.

Rocks exposed in the exploration area belong to the Cretaceous age Blackhawk and Price River formations, and the Cretaceous-Tertiary age North Horn Formation. The rock types are predominantly sandstone, siltstone, shale, and coal. Quaternary alluvium and colluvium deposits of sand, silt, clay and boulders exist within the confines of the canyons. The major geologic features in the exploration area are the escarpments created by the various sandstone outcrops including the 200 ft thick Castlegate Sandstone, a member of the Price River formation. Some faults are present within the area of the exploration program.

Threatened and Endangered Plant and Wildlife Species - There are no known federally or state listed threatened and endangered plant and wildlife species within the sites planned for the exploration drill hole.

There is no known groundwater or surface water flows to the Colorado or Green Rivers with potential for impact by the drilling of the exploration hole. Potential adverse affects to the four Colorado River endangered fish species would not be likely since there is no direct route to the Colorado River or Green River from the proposed drill hole location. Per meetings with Division of Water Quality personnel during application for a UPDES permit in 2004, "there is no data supporting the premise that surface waters associated with the area of the mine operations reached the Price River or Colorado River prior to or since mining disturbance". A letter report by Mt. Nebo Scientific listing cover and the existence of Threatened and Endangered species is provided in Appendix C.

Vegetation – A vegetation report prepared by Mt. Nebo Scientific has been provided in Appendix C. The report covers species and cover for the area of the drill hole.

Wildlife - Drilling of DUG-09 will be post-July 15, eliminating the sites from the wildlife exclusionary period.

Raptors - Aerial raptor nest surveys done of the area by the Utah Division of Wildlife Resource are available for review in the confidential folder of the Dugout Canyon Mine's M&RP.

Goshawks - A Northern Goshawk calling survey was performed for four weeks. According to the survey there was no response from a northern goshawk. A copy of this survey is located in the confidential binder.

Bats - No known open mine shafts, caves, adits or other man made structures that might provide habitats for bats are known to exist in the project area. The sites are open and the lack of a food source would force the bats to seek habitat and nourishment elsewhere.

Mexican Spotted Owl – A calling point survey was conducted in the area by EIS Environmental and Engineering Consulting. The survey report concluded that "within the project area, a thorough search did not reveal the presence of any Mexican spotted owls". Additional studies by DW Wiley and F. Howe indicate that the habitat for the owls is in the southern parts of Utah, not in the Bookcliff area proposed for exploration drilling.

Cultural Resources - There are no known districts, sites, buildings, structures, or objects listed on, or eligible for listing on, the National Register of Historic Places within the proposed exploration area. There are no known archeological resources located in the proposed exploration area, refer to the Confidential Folder of the Dugout Canyon M&RP. Appendix D (Confidential File) is a site-specific cultural resource evaluation for the drilling location.

Ark Land Company will notify the Division should the unlikely event of a cultural or paleontologist resource is discovered during operations. If discovered, the operation will cease and the Division will be notified as soon as possible of the discovery.

224. Period of Intended Exploration

Ark Land Company plans to commence drilling operations in mid July 2009 and end on or around October 31, 2009. During the first week the pump will be set, the frac/water tank will be placed and the waterline will be run. The drilling equipment will then be moved to the drill pad and the hole will be drilled. Following the completion of the hole the frac/water tank will be removed from the pad and then the disturbance will be reclaimed as described in Section 240.

225. Method of Exploration

The general method to be followed during drill hole exploration, reclamation, and abandonment is: 1) repair the existing roads as needed, repair of roads may include hauling gravel to fill rough areas on bedrock ledges and grading rutted areas 2) set temporary water tank, pump, and water line as needed, 3) drill and log hole, 3) reclaim the drill site and remove the tank and pump. Water lines may remain to facilitate future exploration drill and degasification drilling. Access to the drill site will be accomplished along an existing road and on foot. No blasting is planned.

Water will be pumped and/or hauled from Dugout Creek to the drill site (Figure 2). When necessary, water will be stored in water/frac tanks.

Core drilling typically involves one truck-mounted 2,000 ft rated core drill, one 3,000 gallon water truck, one drill pipe truck, one auxiliary air compressor, one supply trailer, four pick-up trucks, a geophysical logging truck and one covered trailer. The drilling procedure for the exploration hole will likely be rotary drilling and spot coring of selected zones. It is anticipated that casing will be set into the top of the Castlegate Sandstone.

Additional equipment potentially used for the drilling of the exploration hole follows. A supply trailer will carry drill steels, coring equipment, drilling additives, cutting and welding equipment, a dog house and other supplies. Two pick-up trucks will be used by

the drillers to carry personnel, fuel, and supplies and two pickup trucks will be used by the dirt contractor. A water truck will be used to supply water to the drilling equipment and/or the removal of water from the pit for disposal. The company representative and geological consultant will also use pick-up trucks for transportation. Support vehicles such as pickup trucks and geophysical logging truck will be parked at the drill site or on adjacent existing roads.

The only coal removed during exploration activities will be cores. Cores will be a nominal three inches in diameter. Assuming an average thickness of 7 ft for the Rock Canyon Coal Seam and 8 ft for the Gilson Coal Seam, an estimated 20 pounds of coal will be removed. The drilling procedure will be to rotary drill and spot core to total depth utilizing water, foam, polymer and/or mud as drilling medium.

The drill hole may range from 4 inches to 10 inches in diameter, depending on the drilling method. Most drilling will likely produce a 6 1/2" hole. The larger diameter will be associated with the installation of surface casing. The estimated depths of the proposed drill hole and disturbance area are as follows:

Drill Site	Location T13S, R12E	Total Depth (ft)	Pad Area Disturbance (ft)	Disturbed Area (acres)
DUG-09-09	SE1/4, NE1/4, SEC. 14	1,205	100 X 100	0.5

All gasoline and diesel powered equipment will be equipped with mufflers or spark arresters. Fire suppression equipment will be available to personnel on the project site.

There are no occupied dwellings and no pipelines located in the exploration area. No trenches will be dug and no structures constructed.

The potential for water pollution will be minimized by keeping pollutants away from the drill hole and in their containers. Materials used during drilling operations will be selected to be biodegradable. All spills of polluting materials will be removed from the area and disposed of in a proper manner.

The drill pad will be constructed approximately100 ft. X 100 ft., including a mud pit. Approximately 12" of topsoil/growth medium will be salvaged. The site is immediately adjacent to an existing road. A qualified individual will be present at the site during construction to identify topsoil, should any be located and to direct topsoil/growth medium salvage. A soils report for Dug-09 is located in Appendix A. A one to three foot berm of subsoil will be constructed around the perimeter of the pad to ensure no runoff from the pad. The pad will be constructed such that fluids will drain toward the mud pit, which will be lined. When the pad is immediately adjacent to an ephemeral or perennial drainage the pit and pad slope will be opposite the drainage. Figure 3 shows a typical drill pad layout. Cutting, excess drill core and used drill foam/mud will be placed in the mud pits and buried at a depth greater than 3.5 feet prior to distribution of soils during reclamation. The pit liner not buried beneath the cuttings will be cut off and removed from the site for proper disposal. The liquids in the mud pit will be allowed to evaporate or will be pumped and hauled for

disposal before the site is reclaimed. Mud pits will be fenced when unattended to prevent wildlife from possible entry. The site will be kept free of trash and debris.

As an integral part of the exploration activities reclamation will progress as contemporaneously as practical following the exploration activities. The site will be retuned to approximate original contour, pocked and gouged. An approved seed mix will be applied following gouging.

R645-202. Coal Exploration: Compliance Duties
R645-202-100. Required Documents

A copy of the NOI to Conduct Minor Coal Exploration including appendices will be available to personnel at the site and will be available for review by an authorized representative of the Division upon request. No road use or special permits are required for the project site.

R645-202-200. Performance Standards

210. Requirements of the State Program

Ark Land Company will comply with all coal exploration requirements of the State Program, and any conditions on approval of the exploration plan

220. Inspection and Enforcement

Ark Land Company and Dugout Canyon Mine accept the Divisions rights to inspect the exploration operations.

230. Operational Standards

231. Non-Disturbance of Habitats

Dugout Canyon will apply all methods necessary to minimize disturbances or any adverse effects to habitats of unique or unusually high value to T & E species. Refer to Section 223 for commitments and information related to threatened and endangered species.

232. Road Construction and Use

No new road construction is planned for this drilling project. The roads existing prior to starting the exploration program will not be reclaimed. Regulations cited under R645-202-232 relative to roads will be followed, when they apply to existing road.

233. Topsoil Removal and Storage

Topsoil/growth medium will be selectively removed, stored, and redistributed on areas disturbed by coal exploration activities as necessary to assure successful re-vegetation or as required by the Division. Refer to Section 225 for additional information related to topsoil removal.

234. Diversion of Overland Flows

No diversions of overland flows and ephemeral, perennial, or intermittent streams will be made in association with the exploration drill hole. No adverse impacts to the stream channel will occur during pumping activities.

Ark Land Company has obtained the necessary permissions and water rights actions to take water for drilling from local drainages in the vicinity of the drill hole. A copy of the approved "Temporary Change Applications/Approvals" is located in Appendix E.

235. Minimizing Disturbance to Hydrologic Balance

Coal exploration will be conducted in a manner which minimizes the disturbance to the prevailing hydrologic balance in accordance with R645-301-356.300 and R645-301-763. Pads and pits will be constructed on each site and measures will be implemented to minimize the effect of run off. Contemporaneous reclamation will follow the completion of the drill hole and collection of the drill hole data.

236. Acid-or Toxic Forming Materials

Based on historical drilling results, it is not anticipated that acid- or toxic- forming materials will be encountered during exploration. However, an in-mine floor sample taken in 2008 (Appendix D) exhibited some acid potential. In the unlikely event unsuitable material is encountered the excess cores will either be buried under four feet of cover on site or taken to the waste rock site and buried beneath four feet of cover.

240. Reclamation Standards

241. Excavations

Upon completion of drilling activities on a site, the site will be reasonably restored to its approximate original contour.

242. Re-Vegetation

The method of revegetation is intended to encourage prompt re-vegetation and recovery of a diverse, effective, and permanent vegetative cover. The seed mix is of the same seasonal variety native to the area to be disturbed. The following seed mixture will be used:

Seed Mix

SPECIES	# pls/acre	# pls/sq. ft.**
Grasses, Forbs, and Shrubs		
Kentucky Bluegrass (1,390,000 seeds/lb)*	0.5	16
Mountain Brome (64,000 seeds/lb)*	2.0	3
Sandberg Bluegrass (1,100,000 seeds/lb)*	1.0	25
Bluebunch Wheatgrass (126,000 seeds/lb)*	4.0	12
Bottlebrush Squirreltail (192,000 seeds/lb)*	1.0	4
Rocky Mountain Penstemon (478,000 seeds/lb)*	1.0	11
Wyoming Big Sage (2,500,000 seeds/lb)*	0.5	29
TOTAL	10.0	100

* Native Plants
** Rounded nearest whole seed

When necessary a seed substitute may be made, the substitute will be native and of a similar genus. The seed mixture will be broadcasted and raked following the broadcast to assure higher probability for germination. The seed mixture and cultivation methods will assure growth capable of stabilizing the soil surface from erosion.

243. Reclamation of Boreholes

The exploration drill hole will be plugged in strict adherence to the requirements stipulated in the NOI. Typically the coal seams will be plugged with cement and the hole above the seam zone would be backfilled with bentonite chips/slurry to their full depth. The completion method includes pulling surface casing when possible; but when not possible, cutting it flush with the ground, and then pumping the cement/bentonite slurry through the drill pipe starting at the bottom of the hole. Plugging will then be done in stages by tripping-out of the hole 3-4 joints (60-80 ft) and pumping again. This process will be repeated to the surface. If bentonite chips are used, the chips will be dumped down the annulus of the hole in such a manner to prevent bridging in the hole and drilling water added to the hole as specified by the manufacturer. A monument marker will be placed in the top of the cement surface plug with the hole number and year. The Division will be notified prior to completion to verify the abandonment procedure if so desired.

244. Removal of Equipment

All equipment will be removed from the exploration site upon completion of the program.

R645-203. Coal Exploration: Public Availability of Information

100. Public Records

Except as provided in R645-203-200, all information submitted to the Division under R645-200 will be available for public inspection.

200. Confidentiality

Ark Land Company requests that the Division not make any drilling information available for public inspection relative to coal seam thickness or quality. This information is considered crucial to Ark Land's competitive rights. Ark Land Company and Dugout Canyon Mine will retain all drill and geophysical logs. In addition, all information submitted with in the NOI which is designated "confidential" will be made unavailable for public inspection.

R645-301 Regulation Information and Commitments

R645-301-358
The operator will to the extent possible using the best technology currently available, minimize disturbances and adverse impacts on fish, wildlife, and related environmental values and will achieve enhancement of such resources where practicable.

Dugout Canyon will minimize disturbances and adverse impacts on wildlife and their related environments as outline in Section 333 of the approved M&RP. See Chapter 7, Section 731.100 of the approved M&RP for methods to protect water sources in the area.

The sites will not be constructed or operated where they might jeopardize the existence of any endangered or threatened species. Refer to Section 322.200 and Attachments 3-1, 3-2 and 3-3 of the M&RP for additional information pertaining to threatened, endangered, and sensitive species. State or federally listed endangered or threatened species will be reported to the Division upon its discovery.

Dugout Canyon understands that there is no permission implied by these regulations for taking of bald or golden eagles, their nests, or eggs. If found eagle nests will be reported to the Division.

Dugout Canyon understands that there is no permission implied by these regulations for taking of endangered or threatened species, their nests, or eggs.

The sites contain no wetland or riparian vegetation.

No potential barriers will exist at any of the well sites, except for the perimeter fence. No ponds exist on the well sites.

R645-301-512.250
R645-301-534.100 thru 300
R645-301-542.600
Do not apply to this NOI, no roads will be constructed.

R645-301-526-200
No major utilities pass over, under, or through the exploration area. Use of roads and development of the exploration site will not disrupt or damage any utility service.

R645-301-527.100, 230, 240
The roads within the permit area that are not owned by the county (primary) are private roads and all roads are preexisting. The Pace Canyon road within the permit area is a primary road; the remainder of the roads within the permit area are ancillary roads. The existing roads will be maintained by Dugout Canyon Mine as required to permit access for environmental monitoring and subsidence surveying and in accordance with maintenance agreements with the private landowner.

If a road is damaged by a catastrophic event, the road will be repaired as soon as practical after the damage occurs.

R645-301-731.100
An approved Temporary Change of Water for water to be used in the drilling process is in place and will be renewed a need to complete the drilling program.

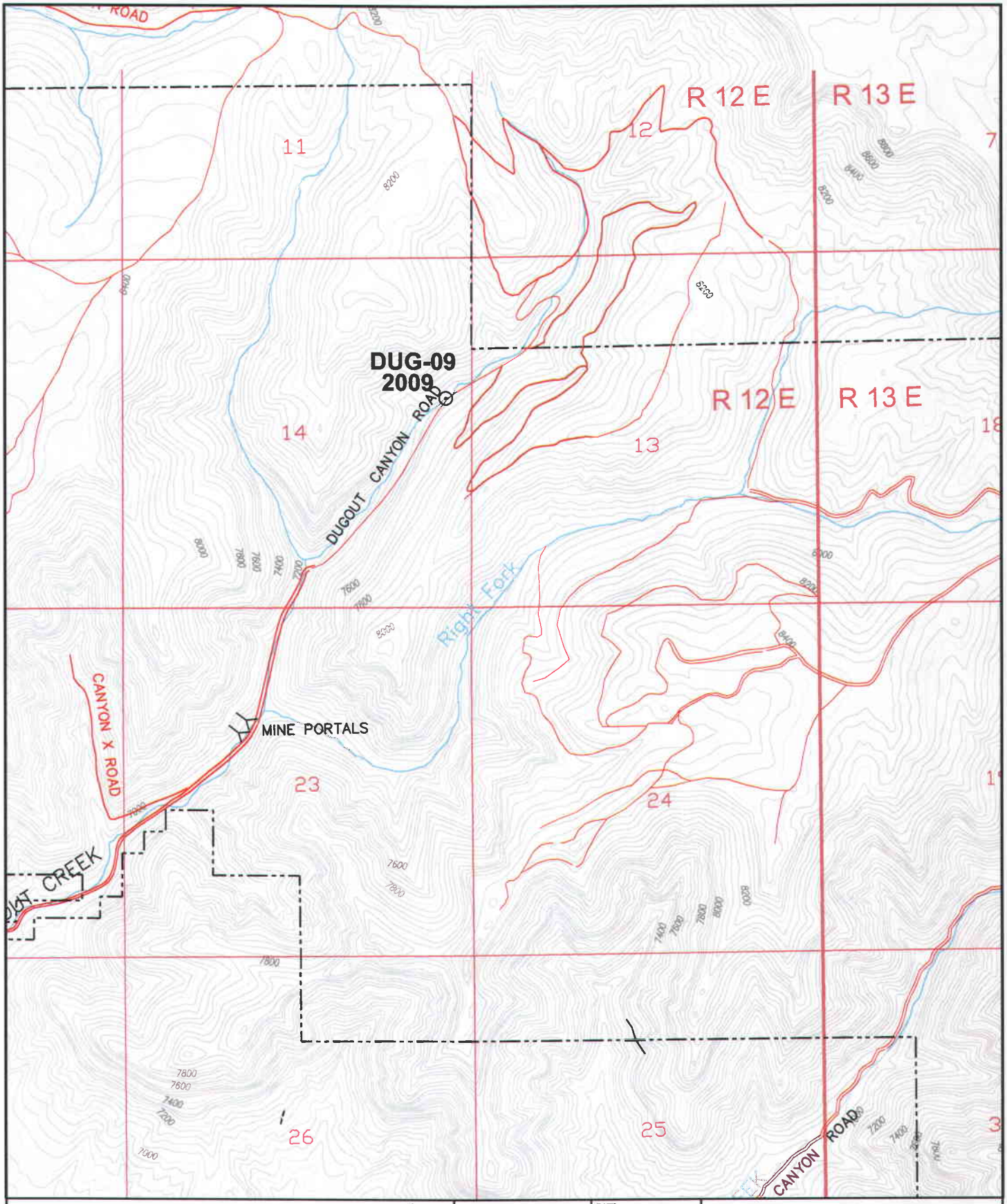
R645-301-742.410 thru 742.420
Minimal surface disturbance will be required for the drilling project. Disturbance will be limited to the drill site. No changes will occur to drainage patterns. The drill site will be setup such that the underlying pit liner will not allow water runoff to the surrounding soils. Water that collects in the pit liner will be pumped and then hauled to an approved waste water disposal site. Contributions of suspended solids will not occur.

The potential for water pollution will be minimized by keeping pollutants away from the drill hole and in their containers. Materials used during drilling operations will be selected to be as non-polluting as possible. All spills of polluting materials will be removed from the area and properly disposed of.

Precautions will be taken to prevent the mixing of surface and ground waters. A berm will encompass the site and the pad will be slopped to direct water towards the mud pit.

Drill fluids and/or cuttings will be contained within the mud pit. If necessary, excess fluids will be pumped out and excess drill cuttings and core will be hauled off and disposed of properly.

Figure 1: Location Map of Dugout Canyon Mine



Mine Permit Boundary

Existing Road -

Proposed
2009 Exploration Site

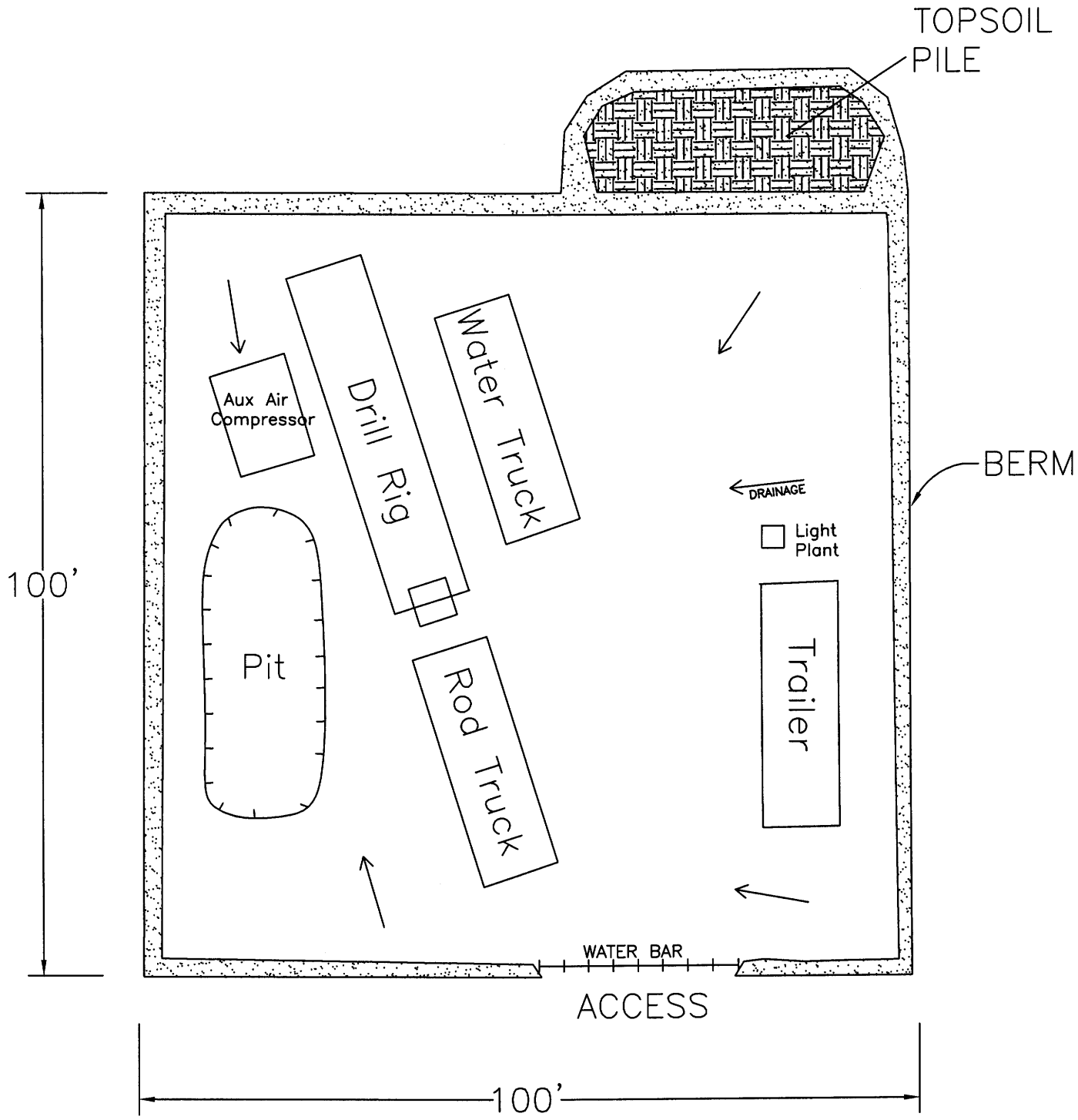
REVISIONS OR UP-DATES			DATE: 2-21-2009	
NO.	DATE	BY	DESIGNED BY:	
			DRAWN BY:	LWR
			CHECKED BY:	
			SCALE:	1"=2000'
FILENAME: 6666				

Canyon Fuel Company, LLC
Dugout Canyon Mine

FIGURE 2
Drill Site Location & Access Roads

P.O BOX 1029
WELLINGTON, UTAH 84542

DRAWING OR MAP NUMBER
1



Note: Location of equipment, soil piles, and mudpit may vary depending on local terrain and conditions.

REVISIONS OR UP-DATES			DATE: 2/27/2009	
NO.	DATE	BY	DESIGNED BY:	
1	8/13/08	AP	DRAWN BY:	JKS
2	2/27/09	WR	CHECKED BY:	WR
			SCALE:	NTS
FILENAME: Typical Drillpad Construction.Dwg				

Canyon Fuel Company, LLC
Dugout Canyon Mine

FIGURE 3
Typical Drill Pad Construction And Setup

P.O BOX 1029
WELLINGTON, UTAH 84542

DRAWING OR MAP NUMBER

Soil Resource Assessment
Exploration and Degas Locations
Dugout Mine Area

Prepared by

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by

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for

CANYON FUEL COMPANY, LLC.
DUGOUT CANYON MINE
P.O. Box 1029
Wellington, Utah 84542

September 16, 2008

and

December 8, 2008

Introduction

An assessment of the soil resources was conducted on sixteen areas identified by Canyon Fuels. Six of the sites were exploration sites (DUG). One of the sites was an exploration with the adjacent road also evaluated. Four of the sites were a combination exploration and degas. Five of the sites were degas locations only. Each location was flagged in the field by staff from the Dugout mine.

Seven of the sites were in the Dugout Creek area, eight were in the Pace Canyon and Lion ridge area, and one site was in the Left fork of Rock Creek.

The eight exploration sites evaluated during this soil resource assessment were:

DUG-H-01 DUG-H-02 DUG-H-03 DUG-01 DUG-04 DUG-07
DUG-08 DUG-09

The exploration site and adjacent road was:

DUG-05 & Road

The four combination exploration and degas sites were:

DUG-02/G-29 DUG-03/G-27 DUG-06/G-25 DUG-10/R-1

The five sites which were evaluated as only degas sites were:

G-26 G-28 G-30 R-2 R-4

Purpose of Soil Resource Assessment

The purpose of this soil resource assessment was to determine how closely the soils at each site correlated with the Carbon County Soil Survey produced by the Natural Resource Conservation Service (USDA 2007). Topsoil and subsoil salvage depths were estimated for each site. Soil types vary across each site and monitoring should be part of all topsoil and subsoil operations.

The potential for reclamation success at each site was a secondary objective of this assessment.

The identification of hazardous or toxic materials was not part of this soil resource assessment.

Assessment Methods

This assessment was made by comparing the soil map unit mapped by the NRCS in the Carbon County Soil Survey with the soils actually identified at each site. A discussion was held with the NRCS staff in Price, Utah to discuss soil series that would fit the soils identified in the assessment area (NRCS, personal communication 2008). Full soil profile descriptions were completed for the degas locations using the Field *Book for Describing and Sampling Soils* (Schoeneberger, P.J., et. al., 2002).

The soil resource assessment was conducted by Robert E. Long, Certified Professional Soil Scientist (CPSS).

Soil colors were compared with color chips in the *Munsell Soil Color Charts* (Munsell 2000).

Digital photographs were taken at each site to document current conditions.

Sketches were made to illustrate the relationships between different areas and vegetation at each site. These sketches were not drawn to scale.

Dominant vegetation was listed for each site. A separate quantitative vegetation assessment is being prepared by Mt. Nebo Scientific.

Site locations were recorded with a Garmin GPSmap 60CSX in UTM, NAD 1983. Elevations were also recorded with the GPS meter.

References

Munsell Soil Color Charts, 2002.

Schoeneberger, P.J., Wysocki, D.A., Benham, E.C., and Broderson, W.D. (editors), 2002. Field Book for describing and sampling soils, Version 2.0. Natural Resource Conservation Service, National Soil Survey Center, Lincoln, NE.

USDA - Natural Resource Conservation Service, Soil Survey Staff. 2006. Keys to Soil Taxonomy, Tenth Edition.

USDA - Natural Resource Conservation Service, August 28, 2008, personal communication.

USDA – Natural Resource Conservation Service, 2008. National cooperative Soil Survey, Web Soil Survey. Carbon Area, Utah, Parts of Canbon and Emery Counties. Accessed July 12, 2008.

DUG-09

Exploration Site

Location:

Easting	540102
Northing	4393984
Zone	12 S
NAD	1983
Township	13 South
Range	12 East
Section	14
Meridian	Salt Lake

USGS Quad: Pine Canyon, Utah

Elevation: 7,582 feet

General Site Description

This exploration site is located in the bottom of the Left Fork of Dugout Canyon. The access road from the Dugout mine runs through the site. Dugout Creek flows along the northeast side of the site, across the north corner, and then just outside the southwest side.

The DUG-09 location has been previously disturbed for either road construction or a log landing. The area has been slightly benched with a sharp drop from the bench to the creek floodplain below. Vegetation in the disturbance area consists of Hounds tongue, Canada thistle, sparse grasses, and scattered mountain big sagebrush.

Slopes are generally 8 to 12 percent on most of the location, except for the northeast and southeast slopes which have some 40 to 55 percent slopes.

NRCS Soil map Unit

Map Unit 62: Midfork – Comodore complex (50 to 70 percent slopes)

The DUG-09 location is in the bottom of the canyon, so slopes are different than those described as typical in the map unit.

Midfork soils were identified on the roadcut. They have a dark surface (mollic) and contain angular sandstone gravels, cobbles, and stones. These soils formed from slope colluvium and stream deposits.

Comodore soils are shallow (less than 20 inches) to sandstone, but were not observed on the site.

Topsoil Resource

Average topsoil salvage depth will be 6 to 15 inches (average 8 inches) and will contain a large amount of cobbles and stones.

It should be possible to successfully reclaim this location. Weed control will likely be needed, due to the presence of weeds at the time of this site evaluation.

Vegetation

The following plant species were observed in the disturbed and native portions of the site. The vegetation report written by Mt. Nebo Scientific contains a more detailed quantitative description of the site vegetation.

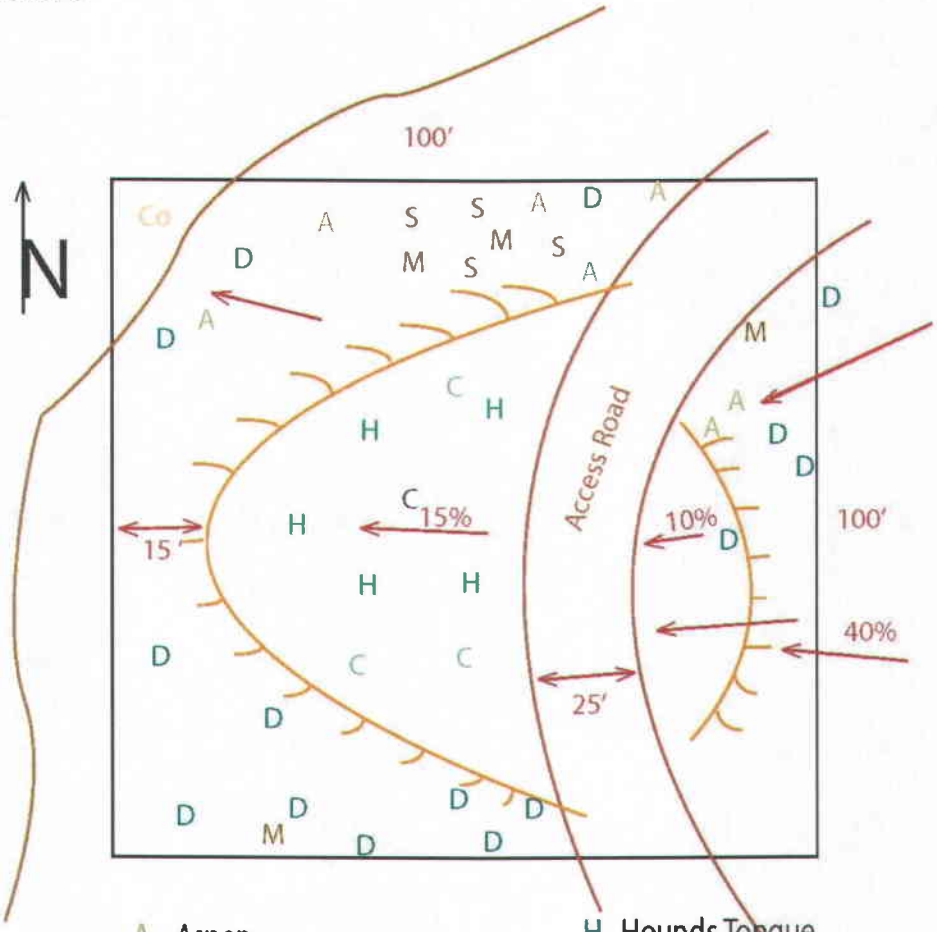
Douglas fir
Quaking aspen
Bigtooth maple
Mountain big sagebrush
Mountain snowberry
Hounds tongue

Site Sketch

This site sketch was prepared during the site visit on August 22, 2008. Distances and locations are approximate (not to scale). The vegetation report written by Mt. Nebo Scientific contains a more detailed quantitative description of the site vegetation.

DUG-9

August 22, 2008



A Aspen

D Douglas Fir

M Bigtooth Maple

Co Narrow Leaf Cottonwood

H Hounds Tongue

C Canadian thistle

S Snowberry

Slope arrows point downhill.

Site Photos

Photo 1. Looking north across disturbed area toward Dugout Creek.

Photo 2. Looking northeast up access road. Midfork soils are visible in the roadcut.

Photo 3. Looking south down access road to\ward Dugout mine. Midfork soil is visible in roadcuts.

Photo 4. Looking west across access road and disturbed area. Dugout Creek is in bottom of draw.

Appendix B

Lease Document

PROOF READ TDW BP MINERAL LEASE NO. _____

MINERAL LEASE APPLICATION NO. 42648 GRANT: School

UTAH STATE LEASE FOR COAL (READJUSTED AS OF NOVEMBER 1, 1995)

THIS UTAH STATE MINERAL LEASE AND AGREEMENT entered into and executed in duplicate as of the 11th day of October, 1985, and readjusted as of November 1, 1995, by and between the STATE OF UTAH, acting by and through the SCHOOL AND INSTITUTIONAL TRUST LANDS ADMINISTRATION, with its offices located at 355 West North Temple, 3 Triad Center, Suite 400, Salt Lake City, Utah 84180-1204, hereinafter called the "LESSOR," and

Sage Point Coal Company
P.O. Box 1029
Wellington, Utah 84542

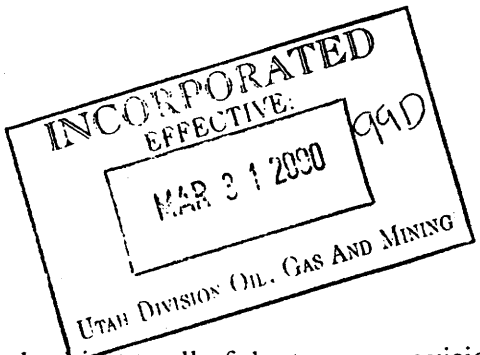
(whether one or more individuals, corporation, or other entities) with business office or address as shown above, hereinafter called the "LESSEE,"

WITNESSETH:

That the State of Utah as Lessor, for and in consideration of the fees, rents, royalties, and any other financial consideration paid or required to be paid by Lessee, and the terms and conditions to be performed by Lessee as hereinafter set forth, does hereby GRANT AND LEASE to the Lessee the exclusive right and privilege to explore for, drill for, mine, remove, and dispose of the particular minerals described in Article I hereof, hereinafter called the "leased substances," situated within the boundaries of the following-described tract of land (extending vertically downward from the surface) in Carbon County, State of Utah, to-wit:

Township 13 South, Range 12 East, SLB&M.
Section 8: E½
Section 10: S½
Section 11: S½
Section 14: All
Section 15: All
Section 17: NE¼, E½SW¼, SE¼
Section 20: E½NW¼, SW¼NW¼, N½NE¼
Section 21: N½NW¼, NE¼
Section 22: N½, N½S½
Section 23: W½NW¼

containing 3,640.00 acres, more or less.



This Mineral Lease is granted for and in consideration of and subject to all of the terms, provisions, and conditions hereinafter set forth:

ARTICLE I. MINERALS COVERED BY THIS LEASE

This Mineral Lease covers the following-described leased mineral substances within the boundaries of the above-described lands:

COAL, which shall mean and include black or brownish-black solid fossil fuel that has been subjected to the natural processes of coalification, and which falls within the classification of coal by rank: I Anthracite, II Bituminous, III Sub-Bituminous, IV Lignitic.

In the event Lessee, or the operator or any contractor for Lessee, shall discover within said lands some mineral or minerals other than the mineral or leased substances covered by this lease, Lessee shall promptly notify the Lessor of the kind or nature of such mineral not included in this lease.

ARTICLE II. PRIMARY TERM AND POSSIBLE EXTENSION OF TERM OF LEASE

This lease is granted for a primary term of TEN (10) years commencing on the first day of the month following the date hereinabove first written and as long thereafter as the leased substances shall be produced in commercial quantities from the above-described lands, on condition that Lessee shall perform the terms and provisions required to be performed by Lessee including payment of rents and royalties within the times require herein; provided however, that it is expressly agreed that at the end of each period of ten (10) years following the effective date of this lease, the State of Utah as Lessor shall have the right to readjust the terms and conditions of this lease as may then be determined to be in the best interest of the State of Utah as trustee owner of the mineral estate. In the event of failure or refusal of the Lessee to accept and agree to the readjustment of the terms and conditions submitted by Lessor at the end of such ten (10)-year period, such failure or refusal to accept such readjustment of terms, conditions, or royalty shall operate to forfeit any right to extension of the term of this Mineral Lease and terminate this lease except for the rights of the State of Utah to recover any royalties then owing the State and/or any damages for which Lessee may be liable. This lease may be extended as provided in Article VI(Fourth), but in no event will it be extended beyond the end of the twentieth year except by the production of the leased substances in commercial quantities from the leased lands. If Lessee ceases production of leased substances in commercial quantities this lease will terminate one (1) year from the date of last commercial production, unless Lessee commences commercial production at least three (3) months prior to the end of such year and such commercial production then continues for at least six (6) months.

ARTICLE III. APPLICABLE LAWS AND REGULATIONS

This lease is issued pursuant to the provisions of Title 53C, Utah Code Annotated, 1953, as amended, and subject to all valid Rules and Regulations and requirements adopted by the School and Institutional Trust Lands Administration, and of the Board of Oil, Gas, and Mining, applicable to the subject matter of this lease, together with all requirements of the Utah Coal Mining and Reclamation Act, the Utah Mined Land Reclamation Act, all requirements of the State Antiquities Act, Title 9, Chapter 8, and all valid statutes, rules and regulations relating to safety, sanitation, environmental protection, and health whether under the jurisdiction of the Division of Oil, Gas, and Mining with respect to operations under this lease or under the jurisdiction of some other State or federal agency.

ARTICLE IV. RIGHTS TO THE SURFACE ESTATE

If the surface estate of all or some portion of the leased lands is owned by the Lessor, Lessee may use such portions of the surface estate owned by Lessor as shall be reasonably necessary to explore and prospect for, mine, drill, remove, and dispose of the leased mineral substances, including permission to establish and maintain in a safe condition access roads, communication lines, tanks, pipelines, reservoirs, mills, processing plants, reduction works, dumps, and other essential structures, facilities, machinery, and equipment, reasonably necessary and expedient for the economic operation of the leasehold and in furtherance of production, treatment, and disposition of the leased substances under this lease. Such surface uses shall be exercised subject to the rights reserved to the State of Utah as provided in Article V hereof, and without unreasonable interference with the rights of any prior or subsequent lessee of the State of Utah under the program of multiple use. Upon the completion of mining, Lessee shall fully reclaim and restore the surface, including but not limited to the removal of all improvements, removal of dumps and spoils piles, recontouring, and revegetation. Lessee shall be liable for, and agrees to pay for, all damages to livestock, growing crops, water, and tangible improvements on the leased lands that may accrue by reason of Lessee's operations.

If the surface estate of any portion of the described lands is not owned by the State of Utah, except for a reserved right of entry to the mineral estate or mineral estates, the Lessee may exercise such right of entry to the mineral estate covered by this lease, at the sole cost and expense of Lessee herein and without cost to the State of Utah. If any damage is caused directly or indirectly to the surface estate by the Lessee or by the contractor or operator for Lessee, Lessee shall make proper restitution and indemnify the surface owner or owners. Lessee also shall make proper rehabilitation as required by the Utah Coal Mining and Reclamation Act, the Utah Mined Land Reclamation Act, and all lawful rules and regulations adopted thereunder.

Lessor will require a bond to be posted or other security given to the State to be filed with Lessor or any other State agency or officer in a principal amount determined by Lessor to be adequate to assure appropriate reclamation and restitution for any damage to the surface estate.

ARTICLE V. EXCEPTIONS AND EXCLUSIONS FROM LEASE

Lessor hereby excepts and reserves from the operation of this lease the following rights and privileges:

FIRST: The right to establish rights of way and easements on, through, or over the land above described, for utility corridors and for joint or joint and several uses, as may be necessary and appropriate for the management of the above-described lands and other lands of Lessor or lands administered by Lessor, and for the working of other deposits within said lands under mineral leases granted to others under the program of multiple use.

SECOND: The right to issue mineral leases to other lessees covering minerals not included in this lease, under such terms and conditions which will not unreasonably interfere with operations under this lease in accordance with the principle of multiple use provided by law.

THIRD: In the event Lessor owns the surface estate in said lands or portions of said lands above described, Lessor retains the right to use, lease, sell, or otherwise dispose of the surface estate in said lands o

any part thereof, under existing State laws or laws subsequently enacted, insofar as such surface is not essential for the Lessee herein in exploration, prospecting for, mining, drilling, removal, or disposal of the leased substances covered by this lease, to the extent that such use, lease, or sale of the surface estate does not unreasonably interfere with the rights granted to the Lessee herein. Lessor shall notify Lessee herein of any such sale, lease, use, or other disposition of the surface estate.

ARTICLE VI. PAYMENT OF RENTALS AND ROYALTIES

For and in consideration of the leasehold rights granted to the Lessee, in addition to all other terms and conditions required to be performed by the Lessee, the Lessee hereby covenants and agrees with Lessor to pay rentals and royalties as follows:

FIRST: Lessee agrees to pay Lessor as rental for the land covered by this lease the sum of One Dollar ($1.00) per acre and for each fractional part of an acre, each year in advance on or before the first day of the month following the anniversary date of this lease, for the first ten years of this lease, except the rental for the first year which has been paid with the application for this lease. For the eleventh and subsequent years of this lease, Lessee agrees to pay an annual rental of Three Dollars ($3.00) per acre and for each fractional part of an acre. All rentals paid shall be credited against actual Production Royalties for the lease year in which they shall accrue, but such rentals shall not be credited against the Minimum Royalties under subparagraph "Fourth" of this ARTICLE VI.

SECOND: Lessee shall pay a production royalty of 8% of the gross value at the mine of all leased substances produced from the leased premises. Where leased substances have been sold pursuant to an arms-length contract, gross value shall be the gross proceeds received by the Lessee, including all bonuses, allowances and reimbursements. It is expressly understood and agreed that none of Lessee's mining or product costs, including but not limited to materials, labor, overhead, taxes, loading costs, processing costs, or general and administrative costs may be deducted in computing production royalties. All such costs shall be entirely borne by Lessee and are anticipated by the rate of royalty assigned in this Agreement. If the coal is not sold at the mine, reasonable transportation costs incurred pursuant to arms-length transportation contracts may be deducted from the gross value of the coal. If the coal is washed or otherwise treated, royalty shall be paid on the basis of its value as washed or treated coal. Lessee shall maintain accurate records of the amount of coal washed or treated and report on the sale price or sale value of the washed coal or treated coal. In no event shall the value of leased substances used to calculate production royalties under this Agreement be less than the value that would be obtained were applicable federal valuation regulations used to value the leased substances. In the event that leased substances are sold other than pursuant to an arms-length contract, or if the Trust Lands Administration determines that the sales price does not reflect the true value of the leased substances, the Trust Lands Administration may make its own determination of the value of the substances, using published indices of coal prices, prevailing contract prices for similar coal in the area of the Subject Lands, or other appropriate measures of value.

THIRD: Payment of Production Royalty shall be made by the Lessee to Lessor, as herein required, on or before the last day of the month next succeeding the month during which the coal is shipped, sold, processed, or used. In connection with such payment of Production Royalty, the Lessee shall submit to Lessor a certified statement of the coal produced; shipped; sold; processed; or used; including unwashed coal, washed,

or otherwise treated coal; coal developed into liquid or gaseous products; or other commercial products by in-situ process or treatment, mined, or extracted from the hereinabove described lands, together with such other information required by the School and Institutional Trust Lands Administration to verify production and disposition of the coal or coal products from the leased premises.

FOURTH: Lessee may maintain this lease in force beyond the primary term of ten (10) years from the effective date of this lease by paying Lessor, in addition to rentals and Production Royalties as hereinabove required, an annual minimum royalty of equivalent to ten times the annual rental, provided that the Lessee must also be engaged in diligent operations, exploration, research, or development activity which is reasonably calculated to advance development or production of the mineral covered by the lease from the leased premises or lands pooled or unitized with or constituting of an approved mining or drilling unit in respect to the leased premises. Said annual minimum royalty shall be paid each year in advance, commencing with the eleventh year of the lease, along with the regular annual rental required to be paid under the terms of this lease. Said rental per acre and said Minimum Royalty shall be paid on each and every acre in this lease to extend the term of this lease and to keep this lease in force and effect. In no event shall this lease remain in effect beyond twenty years in the absence of actual production of leased substances in commercial quantities.

Rentals and Minimum Royalties paid annually shall be credited against actual Production Royalties for the year in which they accrue during the original term, or any extension thereof; but annual rentals shall not be credited against Minimum Royalties.

ARTICLE VII. MINERAL TITLE OF LESSOR

Lessor claims title to the mineral estate covered by this lease. Lessor does not warrant title nor represent that no one will dispute the title asserted by Lessor. It is expressly agreed that Lessor shall not be liable to Lessee for any alleged deficiency in title to the mineral estate, nor shall Lessee or any assigns of the Lessee become entitled to any refund for any rentals, bonuses, or royalties paid under this lease.

ARTICLE VIII. WATER RIGHTS

Any and all water rights developed on the leased land by Lessee shall be filed in the name of Lessor. Lessee shall have the full and free use of such water rights for lease operations during the term of the lease. Upon expiration or termination of the lease, such water rights shall be retained by Lessor. During the term of the lease, Lessee shall preserve, protect, and defend such water rights. Lessee shall assign and convey all existing water rights and any application for appropriation of water to beneficial use relating to the leased land or the mineral estate covered by this lease to Lessor.

If the Lessee shall purchase or otherwise acquire any water rights on some other land and file with the State Engineer appropriate application for change of use onto the premises covered by this lease, the Lessor herein shall have an option for 45 days after the expiration, surrender, or termination of this lease to purchase said otherwise acquired water rights at the acquisition costs of the Lessee. Such option shall begin to run from the date of termination, surrender, or expiration of this lease or from the date when Lessee shall specify in writing the acquisition costs of such other water rights, whichever date is the later date. Unless Lessor accepts such written offer to convey such rights at the actual acquisition costs within said period of 45 days, Lessor shall

be deemed to have rejected the offer. Upon payment of the said acquisition costs by the Lessor, Lessee herein shall assign and transfer such acquired water rights to the Lessor.

ARTICLE IX. WRITTEN CONSENT REQUIRED FOR ASSIGNMENT OR SUBLEASE

Lessee shall not assign this lease nor any portion thereof, nor any rights or privileges herein granted, without the prior written consent of Lessor. Nor shall the Lessee issue any sublease without the prior written consent of Lessor. Any assignment of lease and any sublease issued without prior written consent of Lessor shall be <u>void ab initio</u>.

In the event Lessor shall approve an assignment of this lease or of any part hereof, such assignment shall be subject to all of the terms, conditions, and obligations of the Lessee herein set forth. All of the terms, covenants, conditions, and obligations of the Lessee shall be binding upon the heirs, executors, administrators, successors, and assigns of the Lessee. This provision also shall apply to any sublease issued by Lessee and approved by Lessor.

ARTICLE X. OVERRIDING ROYALTY LIMITATION

Neither the Lessee nor the assignee of Lessee shall create or grant any overriding royalty except as permitted by law and by the Rules and Regulations of the School and Institutional Trust Lands Administration. Overriding royalty assignments shall not become effective, even if otherwise valid, until filed with the Lessor.

ARTICLE XI. SURRENDER OR RELINQUISHMENT OF LEASE

Upon approval of the Lessor and the payment of all rentals, royalties and other amounts then owing, Lessee may surrender this lease for cancellation by Lessor as to all or any part of the leased lands, but not for less than a quarter-quarter section or surveyed lot.

ARTICLE XII. NOTICE OF COMMENCEMENT OF OPERATIONS, PLANS, PLATS, BOND

Not less than sixty (60) days before commencement of exploration, drilling, or mining operations, Lessee shall give written notice hereof to the School and Institutional Trust Lands Administration and the Division of Oil, Gas, and Mining, together with a plan of operations and a topographic map showing every proposed shaft, tunnel, open pit, drill site, and access road to be used. Lessor shall make an assessment of such plan of operation and either endorse or stipulate changes in Lessee's plan of operation, or request additional information within the sixty (60) day notification period. Lessee shall not proceed with the execution of any such plan of operation without first receiving the written approval of Lessor. Lessee shall maintain at the mine office clear, accurate, and detailed maps of all actual and planned operations on a scale of not more than 50 feet to the inch, with points coordinated with public land surveys showing distance to the nearest public survey monument or reestablished survey corner. Such maps and plats shall be on tracing cloth or other material which is substantially permanent and of which clear and distinct photo copies or blueprints can be readily made without unreasonable delay. Such maps or plats shall show the workings from time to time, as the same are extended. In the event that the operations on the above-described leasehold are intended to be conducted in conjunction with adjacent lands, whether Federal, State, or privately-owned lands, the map and plats shall clearly show how the operations are

to be coordinated. All surveys shall be conducted by a licensed surveyor or engineer qualified to practice in Utah. All such maps or plats shall be certified by the surveyor or engineer preparing the same. The State or any agency of the State of Utah, including the Division of Oil, Gas, and Mining, shall be entitled to a true and correct copy thereof, together with the proposed plans of operation.

After Lessor receives notice of intent to commence mining operations, upon request of the Lessor, the Lessee shall furnish a bond with an approved corporate surety company authorized to transact business in the State of Utah, or such other security acceptable to the Lessor, in an amount to be determined by Lessor, after taking into account the value of the land and the amount of potential damage which likely will result from such proposed mining operations, and which bond or other security shall be conditioned upon payment of all rentals and royalties from the leasehold and other sums which may become payable to the Lessor, and to assure full compliance with the terms and conditions of this lease and compliance with all Rules and Regulations of the School and Institutional Trust Lands Administration and all Rules and Regulations of any other State agency having jurisdiction over mining operations, and also conditioned upon payment of all damages to the surface and improvements thereon if this lease covers surface estate or some portion of the surface estate which has been sold or otherwise leased, and any damage caused by Lessee to any other lessee of the State of Utah with respect to said land. Such bond or other security furnished prior to commencement of development of the leasehold may be increased in such reasonable amounts as the Lessor may require after discovery of any of the leased substances.

If the plan of mining development or mining operations includes core-drilling, the plan of operations shall disclose the locations of core-drilling operations.

ARTICLE XIII. ALL OPERATIONS TO BE CONDUCTED IN A LAWFUL, PRUDENT MANNER

Lessee shall conduct all operations under this lease in a lawful, prudent, and good workmanlike manner for the effective and safe production of the mineral substances covered by this lease, and to avoid unnecessary damage and injury to the leasehold estate, and also to avoid damage and wastage of other natural resources not covered by this lease. All operations of Lessee, whether conducted directly by Lessee or by operators or contractors, shall be at the sole cost and expense of Lessee. Such methods of mining shall be used that will ensure the extraction of all economically recoverable coal.

It is expressly covenanted and agreed that Lessor does not grant Lessee or any person dealing with Lessee any right to subject the property hereinabove described, nor any leased substances, to any lien-rights for labor or mechanic's liens, nor to any materialmen's liens, nor to any other lien for any act, omission, neglect, or performance of Lessee or its agents, employees, and contractors. In the event any one shall file any notice or claim of lien against said property or any estate in said property, Lessee shall take all necessary steps expeditiously to have such notice or claim released of record. Lessee shall save Lessor harmless from any and all lien notices and claims against said land arising from any act or neglect of Lessee and any contractor or operator of Lessee in any operations on or relating to the hereinabove described lands.

Lessee shall not fence off or otherwise make inaccessible to livestock lawfully on the surface of said premises any watering place without the written consent of Lessor; provided, that Lessee shall not permit any livestock to come upon any portion of the leasehold to pollute any surface or subsurface water available or

capable of being made available for domestic use or irrigation. In the operations of Lessee, Lessee shall comply with all laws and regulations for control of water which might be encountered or which might seep into any formation, to avoid pollution of surface and underground waters as required by Chapter 11, Title 26, Utah Code Annotated, 1953, as amended. Lessee shall comply with all valid laws and regulations relating to prevention and suppression of fires, make all necessary provisions for sanitary disposal of wastes, and in all operations connected with said leasehold take appropriate measures for protection of human life and prevention of injuries and disease.

Lessee shall indemnify, defend and hold harmless the Lessor from all liability, claims, causes of action, damages or expenses arising out of or alleged to arise out of the operations of Lessee hereunder, or the presence on the leased lands of any employee, agent, contractor or subcontractor of Lessee.

ARTICLE XIV. RIGHTS OF LESSOR FOR INSPECTIONS OF LEASEHOLD AND RECORDS

Lessor, its officers, and agents have the right at all reasonable times to enter upon the leased lands and premises to inspect the conditions of the leasehold, the work done under the terms of this lease, and the production obtained from the leasehold, such entry and inspections to be done in such a manner as shall not unreasonably interfere with the lawful operations by the Lessee in performance of the terms and conditions of this lease.

Lessor also shall have the right to examine all books and records pertaining to operations under this lease whether such books and records are located within a building on the leased premises or located in an office elsewhere and to make copies and abstracts of such records if desired by Lessor. Lessor, its officers, and agents shall have the right to post upon or within the leasehold such notices deemed proper or expedient by Lessor.

If Lessee maintains an office in another State or in a foreign country, Lessee nevertheless shall maintain within the State of Utah proper and adequate records relating to operations on this leasehold and also relating to production of leased substances and payment of rentals and royalties. Lessee also shall have a resident agent in the State of Utah to whom any and all notices may be sent by Lessor and on whom process may be served. In the event of any change in the address of Lessee's office in the State of Utah, Lessee shall promptly furnish Lessor with written notice of such change of address within the State of Utah. Examinations of records of Lessee by the Lessor shall be conducted at reasonable times.

In the event Lessee conducts core-drilling operations within the leasehold, or by directional drilling from adjacent land, Lessor shall have a right of inspection of core samples and any analysis made thereof and any assay; provided, that any report obtained by Lessor of any core-drilling operations may be declared confidential information by Lessee, in which event Lessor shall keep such information in a separate confidential information file. Such information shall not be disclosed to any competitor nor to any one except to a representative of the Attorney General of the State of Utah until Lessee waives confidentiality or upon surrender, expiration, or termination of this lease.

After completion of any core drilling, Lessee shall notify Lessor; and Lessee shall cause all core holes to be plugged or sealed as expeditiously as possible after the need for keeping such core holes unplugged ceases, in accordance with regulations and requirements of the Division of Oil, Gas, and Mining.

ARTICLE XV. OPERATIONS IN CONJUNCTION WITH MINING ON OTHER LANDS

In the event Lessee, in the interest of economy in mining operations, desires to conduct mining operations on or within the above-described lands in conjunction with mining operations on or within any adjacent Federal, State, or privately-owned land by utilization of shafts, inclines, or tunnels within either the above-described lands or within adjacent lands, Lessee shall make application in writing to the School and Institutional Trust Lands Administration and submit with such application a detailed plan of operations illustrating how leased substances mined from the above-described lands can and will be mined, segregated, and separately accounted for from leased substances mined from some adjacent land. No such operations shall be conducted without written approval of the School and Institutional Trust Lands Administration. Any approval granted by the School and Institutional Trust Lands Administration shall be conditioned upon proper segregation and proper accounting and record keeping of leased substances mined from each property. Separate records shall be required for accounting for leased substances mined from the above-described lands.

If there is any conjoint operation, there shall be no commingling of coal or coal products or substances produced from the above-described lands with those of adjacent lands until and unless there has been a completely accurate accounting on production from the above-described lands as distinguished from production from adjacent lands.

The production of coal and operations in connection therewith as conjoint operations shall be subject to such examination and review as deemed desirable by the School and Institutional Trust Lands Administration and the Division of Oil, Gas, and Mining, to determine whether any conjoint operations are detrimental to the State of Utah. If any such inspection results in an adverse report from either agency with recommendations for modification or discontinuance of such conjoint operations by order of the School and Institutional Trust Lands Administration, a copy of such report with recommendations for modification or discontinuance shall be submitted as expeditiously as possible to the Lessee. If any objectionable condition is not promptly remedied to safeguard the rights of the State as Lessor, the School and Institutional Trust Lands Administration shall have the right to order discontinuance of such arrangement; and failure to comply with such order of the School and Institutional Trust Lands Administration shall constitute a breach of this Lease Agreement.

ARTICLE XVI. SPECIAL REQUIREMENTS IN EVENT OF STRIP-MINING

In the event Lessee desires to conduct any strip-mining or open-pit mining or operations which will materially disturb the surface of the above-described lands or some portion thereof, at least sixty (60) days before commencing such type of mining activities, Lessee shall submit to the School and Institutional Trust Lands Administration the proposed plan of operations together with a proposed plan of surface rehabilitation in compliance with the Utah Coal Mining and Reclamation Act, and the Utah Mined Land Reclamation Act and in compliance with the Rules and Regulations adopted thereunder. A copy of such proposed plan of operations and proposed plan of surface rehabilitation also shall be submitted to the Division of Oil, Gas, and Mining. No such operations shall be commenced until the Division of Oil, Gas, and Mining approves the plan of operations and approves a program of rehabilitation. Security may be required of Lessee to assure appropriate rehabilitation in accordance with the said statute and rules and regulations adopted thereunder.

ARTICLE XVII. EQUIPMENT OR FACILITIES TO REMAIN WITH THE LAND

Upon surrender, forfeiture, expiration, or termination of this lease, any and all underground timbering supports, shaft linings, rails, and other installations necessary for the support of underground tunnels, shafts, inclines, or other underground mine supports, together with all rails or head frames and all other underground construction and safety equipment annexed to the ground (excluding detachable motor-driven machinery) which cannot be removed without creating a danger to any shaft, tunnel, incline, or other underground improvements annexed to the mine, and including equipment installed underground to provide for ventilation of the mine or some portion thereof, shall be left within said land above described by the Lessee, operator, and contractor of Lessee and shall remain a part of the realty. Lessor shall acquire all rights thereto without indemnification of Lessee or operator or contractor for Lessee.

Except as herein specifically excepted, all personal property of Lessee, including removable machinery, equipment, tools, and stockpiles of leased substances for which royalty has been paid, shall remain the property of Lessee or operator or contractor for Lessee and Lessee or operator or contractor for Lessee may remove the same at the sole expense of Lessee or operator or contractor within two (2) months following expiration, forfeiture, surrender, or termination of this lease, except that the School and Institutional Trust Lands Administration for good cause shown shall have the right to grant a reasonable extension of time beyond the period of two (2) months for removal of any and all equipment which may be removed by Lessee or operator or contractor as herein provided. At the end of such period, Lessor may consider abandoned and lay claim to any or all equipment or stockpiles remaining on the premises.

Upon expiration, surrender, forfeiture, or termination of this lease or abandonment of the leasehold by Lessee, the Lessee shall cause to be sealed or properly shut off all or parts of the mine openings including shafts and tunnels in the manner and method required by the Director of the Division of Oil, Gas, and Mining, and to abate any hazardous condition which may have been left by Lessee, such abatement of hazardous condition to be performed in accordance with reasonable requirements of the Director of the Division of Oil, Gas, and Mining.

ARTICLE XVIII. INTEREST

Interest shall accrue and be payable on all obligations arising under this lease at such rate as may be set from time to time by rule enacted by Lessor. Interest shall accrue and be payable, without necessity of demand, from the date each such obligation shall arise.

ARTICLE XIX. CONSENT TO SUIT IN STATE DISTRICT COURT

It is agreed that if there arises any controversy between Lessor and Lessee or any successor in interest of Lessee which needs to be litigated, Lessee or any one claiming by or under the Lessee shall bring such action in the District Court of Salt Lake County, State of Utah, after compliance with the requirements of any State statutes for bringing suit, including compliance with the requirements of the State Governmental Immunity Act, Title 63, Chapter 30, Utah Code Annotated, 1953, as amended. Neither Lessee nor any assignee of lessee nor any one claiming under, by, or through the Lessee shall bring any suit against the State of Utah or against any State

agency in the United States District Court for the District of Utah, nor in any other United States District Court in some other state, nor in the District of Columbia.

ARTICLE XX. REMEDIES FOR DEFAULT BY LESSEE OR ASSIGNS

This Mineral Lease and the terms and conditions of this lease agreement issued by the State of Utah are made with the Lessee herein on condition that Lessee and any lawful successor in interest to Lessee shall perform all covenants and terms and conditions herein set forth to be performed by Lessee or its lawful assigns including payment of rentals and royalties as herein provided; and if at any time there shall be default on the part of lessee or breach of any of the terms or conditions hereof on the part of Lessee or by the successor in interest to the Lessee; and if such default or breach shall continue for a period of thirty (30) days after written notice from Lessor of such default or breach given to Lessee or successor in interest addressed to Lessee or successor in interest at the last address furnished by Lessee or successor in interest by United States mail, then at the expiration of said period of thirty (30) days immediately following such notice if the default or breach has not been remedied, then at the expiration of said period of thirty (30) days, at the option of the Lessor, Lessor may issue written notice of termination and cancellation of this lease and forfeiture declaring that the leased premises and each and every part thereof have thereby reverted to the Lessor, including any and all fixtures and improvements required to be left with the property upon expiration, termination, or cancellation of this lease.

In the event that the leasehold estate shall have been damaged or injured by the acts or neglect of the Lessee or operator, contractor, or assigns of Lessee, Lessor also shall have a right of action for damages and for restitution for any failure or refusal to comply with the terms and conditions of any statute of this State relating to reclamation or rehabilitation, or for abatement of pollution, together with rights for injunctive relief. Lessor also shall have the right to recover on any bond or other security deposited with the State of Utah in accordance with the terms or conditions hereinabove set forth for indemnification.

IN WITNESS WHEREOF, the parties have executed this lease as of the date hereinabove first written.

THE STATE OF UTAH, acting by and through the SCHOOL AND INSTITUTIONAL TRUST LANDS ADMINISTRATION

DAVID T. TERRY, DIRECTOR

By _____

JAMES D. COOPER, ASSISTANT DIRECTOR
School & Institutional Trust Lands Administration - LESSOR

APPROVED AS TO FORM:
JAN GRAHAM
ATTORNEY GENERAL

By _____
Special Asst. Atty. Gen.

Form Approved: March 26, 1996

Vernal J. Mortensen, Executive Vice President
Sage Point Coal Company

INCORPORATED
EFFECTIVE
MAR 31 2000
LESSEE

UTAH DIVISION OIL, GAS AND MINING

STATE OF UTAH)
COUNTY OF SALT LAKE)

On the 15th day of October, 1996, personally appeared before me JAMES D. COOPER, who being by me duly sworn did say that he is the Assistant Director of the School and Institutional Trust Lands Administration of the State of Utah and the signer of the above instrument, who duly acknowledged that he executed the same.

Given under my hand and seal this 15th day of October, 1996.

Notary Public
LYNDA M. BELNAP
675 East 500 South, Suite 500
Salt Lake City, Utah 84102
My Commission Expires
April 1, 1998
State of Utah

Lynda Belnap
NOTARY PUBLIC, residing at:

My Commission Expires:

STATE OF UTAH)
COUNTY OF)

On the _____ day of _____, 19_____, personally appeared before me _____, signer of the above instrument, who duly acknowledged to me that _____ executed the same.

Given under my hand and seal this _____ day of _____, 19_____.

_____
NOTARY PUBLIC, residing at:

My Commission Expires:

STATE OF UTAH)
COUNTY OF SL)

On the 26th day of August, 1996, personally appeared before me Vernal J. Mortensen, who being duly sworn did say that he is an officer of Sage Point Coal Co and that said instrument was signed in behalf of said corporation ~~by resolution of its Board of Directors~~, and said ~~that~~ acknowledged to me that said corporation executed the same.

Given under my hand and seal this 26th day of August, 1996.

Notary Public
ANNETTE E. KENNETT
175 East 400 South, Suite 800
Salt Lake City, Utah 84111
My Commission Expires
December 16, 1999
State of Utah

Annette E. Kennett
NOTARY PUBLIC, residing at: Sandy UT

My Commission Expires:

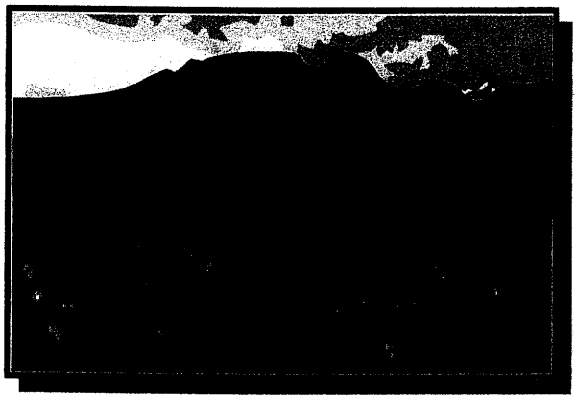
INCORPORATED
EFFECTIVE: 1996
MAR 21 2003
UTAH DIVISION OF OIL, GAS AND MINING

Appendix C

Vegetation Information
Threatened and Endangered Information

Vegetation of Drill Sites: DUG-07/R-02, DUG-08, DUG-09, DUG-10, H-01 & Reference Areas

For the
Dugout Canyon Mine



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for

CANYON FUEL COMPANY, LLC
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

March 2009

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Introduction

History of Vegetation Sampling in the Area

This is the next document in a sequence of vegetation reports prepared for Canyon Fuel Company. The mining company has been constructing drill sites for exploration and de-gasification as safety precautions for mining coal at the Dugout Canyon Mine in Carbon County, Utah. Permitting of the "de-gas" drill sites and exploration holes have been done in consecutive order on a site-by-site basis and have been driven by their location and role in the mine plan. Earlier reports have been submitted to address the plant communities that were proposed to be impacted by the previously constructed drill sites. The first of these reports was called *Vegetation of the Dugout Canyon Mine De-gas Borehole Sites* (July 2003). This report quantitatively described the vegetation proposed for disturbance and reference areas chosen to represent future revegetation success standards on the following drill sites: G-1, G-2, G-3, G-4, G-5 and G-6. A study was later conducted for the next drill sites to be constructed. The final report for these sites was called *Vegetation of the De-gas Borehole Sites: G-8, G-9, G-10 & Reference Areas* (August 2005). The next report in the sequence was titled *Vegetation of the De-gas Borehole Sites: G-11, G-12 & Reference Areas* (November 2005). Next, a document called *Vegetation of the De-gas Borehole Sites: G-13, G-14, G-15, G-16, G-17 & Reference Areas* was prepared and submitted. Subsequently, a document was prepared that reported results from sampling De-gas Site G-19 (*Vegetation of the De-gas Borehole Site: G-19*) , then later a

document contained quantitative information for De-gas Drill Sites G-21, G-22 and associated reference areas *(Vegetation of the De-gas Borehole Sites: G-21, G-22 & Reference Areas)*. The last document contained information that quantitatively described De-gas Sites G-25 (also called DUG-06), G-26 and G-29 (also called DUG-02) along with their reference areas *(Vegetation of the De-gas Drill Sites: G-25, G-26, G-29 & Reference Areas)*.

This document is the next in the sequential order for potential impacts to the vegetation of drill hole exploration sites including DUG-07/R-02, DUG-08, DUG-09, DUG-10, H-01 and their associated reference areas.

Drill Pad Construction

In order to develop the drill pads, a small amount of land has been proposed to be disturbed at each de-gas site location. Most of the proposed drill pads have been approximately 200 ft. x 300 ft in size, but some are about half that size. The plant communities proposed for disturbance at each of these sites have been described and sampled with the results provided in this report. A sensitive plant species survey was also conducted at the sites.

Like the earlier developed de-gas drill and exploration sites, attempts have been made to minimize disturbance to the native plant communities by planning proposed construction of the new sites in areas where previous disturbance had already been caused by logging, road construction or other activities.

Revegetation Success Standards

As mentioned above, reference areas have been chosen to represent future standards for final revegetation success of the disturbed sites once they area reclaimed. These reference areas were chosen with respect to their similarities in geology, soils, slopes, aspects and plant community composition to the areas that are proposed for disturbance. At some earlier sites where the proposed new disturbances existed in areas that were previously disturbed by other activities, and when it appeared feasible for final revegetation, attempts were made to choose the reference areas to represent the native plant communities that were present at the site prior to these perturbations. In these cases, undisturbed plant communities were chosen as the reference areas for de-gas drill pads – even though the current condition of the proposed pad was much less than pristine. In other areas where the soils have limited characteristics due to disturbances or topsoil removal, revegetation to match the plant communities where soils remain undisturbed may be difficult. In these instances, specific success standards have been recommended (more details will be given about this later in this report).

As described above, vegetation sampling has been conducted on proposed de-gas and exploration drill sites for the past few years. Consequently, many of the plant communities that were sampled previously on the earlier drill sites are the same, or very similar to, those that have been proposed for new drilling activities. Because the earlier drill sites have reference areas associated with them that will be used for final revegetation success standards, and because these reference areas were very similar to the plant communities of the currently proposed drill pads,

data from the existing reference areas have been used for comparisons herein. Accordingly, some of the existing reference areas will also be used for revegetation standards for the new drill sites at the time of final reclamation.

Methods

Sample design was consistent with previous quantitative sampling methods in the area. Methodologies used for this study were performed in accordance with the guidelines supplied by the State of Utah, Division of Oil, Gas and Mining (DOGM). Quantitative and qualitative data were recorded within the plant communities proposed for disturbance at Dug-07/R-02, Dug-08, Dug-09, Dug-10, H-01 in July and August 2008. The reference areas for these sites were sampled in the growing seasons of 2003 and 2005.

Proposed drill sites were surveyed, mapped and staked in the field by representatives of Canyon Fuel Company prior to the vegetation sampling. The reference areas chosen were approximately one acre in size and were marked in the field using a GPS instrument. The coordinates for the proposed de-gas drill pads and reference areas are provided below.

GPS Coordinates for Dugout Canyon Mine Drill Sites: Dug-07/R-02, Dug-08, Dug-09, Dug-10, H-01 & Reference Areas

(UTM, ZONE 12S, NAD 27)

Waypoint Name	Coordinates (m)	Notes
Dugg0807	0540452 E 4393709 N	Proposed Disturbed Site: **DUG-07/R-02**
Dugg0808	0541071 E 4393423 N	Proposed Disturbed Site: **DUG-08**
Dugg0809	0540100 E 4393972 N	Proposed Disturbed Site: **DUG-09**
Dugg0810	0541856 E 4393845 N	Proposed Disturbed Site: **DUG-010**
Dugg08H01	0543235 E 4390098 N	Proposed Disturbed Site: **H-01**
DUG14R	0544338 E 4393299 N	**Aspen/Douglas Fir Reference Area** for DUG-08 & DUG-09 (also for G-14, G-19 & G-21)
DUG16R	0542993 E 4392921 N	**Mtn. Brush/Sagebrush Reference Area** for DUG-07 & DUG-10 (also for G-16, G-17, G-22, G-26 & G-29).
DUGRAF	0541840 E 4392837 N	**Aspen//Maple/Douglas Fir Reference Area** for H-01 (also for G-1, G-4 & G-6)

Sampling Design and Transect/Quadrat Placement

Transect lines for vegetation sampling were placed randomly within the boundaries of the proposed disturbed and reference areas. The sample boundaries included 100 ft outside the proposed drill site. The transect placement technique was employed with the goal to adequately sample a representative subset of the entire site. Once the transects were established, quadrat locations for sampling were chosen using random numbers from the transect lines with the objective to record data without preconceived bias.

Cover and Composition

Cover estimates were made using ocular methods with meter square quadrats. Species composition, cover by species, and relative frequencies were also assessed from the quadrats. Additional information recorded on the raw data sheets notes such as: slope, exposure, grazing use, disturbance and/or other appropriate notes. Plant nomenclature follows "A Utah Flora" (Welsh et al., 2003).

Woody Species Density

Density of woody plant species for the proposed disturbed and reference areas were estimated using the point-quarter method. In this method, random points were placed on the sample sites and measured into four quarters. The distances to the nearest woody plant species were then recorded in each quarter. The average point-to-individual distance was equal to the square root of the mean area per individual. The number of individuals per acre was the end results of the calculations.

Sample Size & Adequacy

Sampling adequacy for cover and density was attempted by using the formula given below.

$$nMIN = \frac{t^2 s^2}{(dx)^2}$$

where,

nMIN	= minimum adequate sample
t	= appropriate confidence t-value
s	= standard deviation
x	= sample mean
d	= desired change from mean

With the values used for "t" and "d"above, the goal was to meet sample adequacy with 80% confidence within a 10% deviation from the true mean. In areas where sample viability was unnaturally high (e.g. previous disturbance sites), these parameters sometimes prove to be too stringent.

Statistical Analyses

Student's t-tests were employed to compare the total living cover and total woody species density of each proposed disturbed drill site with its reference area.

Photographs

Color photographs of the sample areas were taken at the time of sampling and have been submitted with this report.

Threatened & Endangered Plant Species

Prior to recording quantitative data on the plant communities, a sensitive plant species survey

was conducted. To initiate the study, appropriate agencies had been consulted (e.g. *Utah Natural Heritage Program*) and other sources were reviewed (sensitive species files at *Mt. Nebo Scientific, Inc.*) for potential plant species that are known to be rare, endemic, threatened, endangered or otherwise sensitive in the study area.

Raw Data

The raw data have been summarized on a spreadsheet and is available upon request.

Results & Discussion

Drill Site DUG-07/R-02

The plant community at this site was called a **Sagebrush/Mountain Brush community**. However, like so many of the drill sites, it was situated on the spine of a ridge which places it on a variety of soils, exposures and slopes making the area conducive to supporting plant communities that are transitional, or those communities that lie "in-between" other major plant communities in the area.

The dominant understory plant species of the area were the shrubs, mountain big sagebrush (*Artemisia tridentata var. vaseyana*), snowberry (*Symphoricarpos oreophilus*) and the grasses,

Salina wildrye *(Elymus salinus)*, and Sandberg's bluegrass (*Poa secunda*). A host of forbs was also present in the sample quadrats making them important collectively, but individually they usually consisted of less than 1 percent of the total living understory cover (Table 1). Overstory species consisted of Utah Serviceberry (*Amelanchier utahensis*) and Douglas fir (*Pseudotsuga menziesii*).

Total living cover of DUG-07/R02 was estimated at 51.00%; 48.00% of this cover was understory and 3.00% was overstory cover (Table 2-A). Shrubs comprised 51.32% of the understory cover, whereas grasses and forbs were 29.54% and 19.15%, respectively (Table 2-B).

The total woody species density of the site was estimated at 3,679 individuals per acre. The dominants for this parameter were sagebrush, snowberry, viscid rabbitbrush *(Chrysothamnus viscidiflorus)* and Utah serviceberry (Table 3).

Drill Site DUG-08

This site was an **Aspen/Conifer community** that has been **previously disturbed** by other activities. The quantitative sampling indicated that the site was dominated by big sagebrush (*Artemisia tridentata*), Kentucky bluegrass (*Poa pratensis*), hound's-tongue *(Cynoglossum officinale)* and snowberry (Table 4).

Total living understory cover of this community was estimated at 56.67% (Table 5-A).

Composition of the cover was comprised of 44.55% shrubs, 38.02% forbs and 17.43% grasses (Table 5-B).

The total woody species density of the site was 6,138 plants per acre (Table 6) and consisted of big sagebrush, snowberry, Wood's rose (*Rosa woodsii*) and current (*Ribes cereum*).

Drill Site DUG-09

Like DUG-08 above, DUG-09 was the site of a **previously disturbed Aspen/Conifer community**. From Table 7 it is evident that this site was dominated by hound's-tongue, a "weedy" species, and mountain brome (*Bromus carinatus*).

Total living cover of this community was estimated at 49.33% (Table 8-A) of which was comprised of 49.00% forbs, 35.64% grasses and 15.36% shrubs (Table 8-B).

Total woody species density was only 339 individuals per acre and was dominated by snowberry and big sagebrush (Table 9).

Drill Site DUG-10

Similar to DUG-07/R-02 above, this site was dominated by a **Mountain Brush/Sagebrush community**. Also a transitional community, this site also had scattered pinyon-pine (*Pinus*

edulis), Utah Juniper (*Juniperus utahensis*) and Douglas fir trees present. The dominant understory plant species of the area was mountain big sagebrush, Salina wildrye, Utah serviceberry, and Watson's penstemon (*Penstemon watsonii*). Also like DUG-07/R-02 above, a host of forbs was also present in the sample quadrats making them important collectively (Table 10). Overstory species present in the sample quadrats consisted of only Douglas fir.

Total living cover of DUG-10 and its access road was estimated at 54.50%; 53.50% of this cover was understory and 1.00% was overstory cover (Table 11-A). Shrubs comprised 51.94% of the understory cover, whereas forbs and grasses were 24.84% and 23.22%, respectively (Table 11-B).

The total woody species density of the site was estimated at 4,923 individuals per acre. The dominants for this parameter were sagebrush, Utah serviceberry and snowberry (Table 12).

Drill Site H-01

The H-01 drill site has been proposed to be accessed by helicopter. This was an upland community, but was located in a drainage bottom. The plant community here was called a **Maple/Pinyon-Juniper (Conifer/Snowberry) community** – due of its location, it was transitional between all these community types.

Overstory, a major component here, was dominated by white fir (*Abies concolor*), Utah juniper

and Douglas fir (Table 13). The understory dominants were snowberry and bigtooth maple *(Acer grandidentatum)*.

The total living cover of the site was estimated at 77.33%, of which 48.67% came from understory and 28.67% from overstory (Table 14-A). Woody species much dominated the composition and comprised 80.71% of the understory cover, whereas forbs comprised 17.96% and grasses only 1.33% (Table 14-B).

Woody species density totaled 1,061 individuals per acre, of which was dominated by snowberry, bigtooth maple, big sagebrush and Utah juniper (Table 15).

Reference Areas and Revegetation Success Standard Considerations

Several reference areas have been chosen previously to represent revegetation success standards for exploration and de-gas sites studied earlier. The existing reference areas were reviewed as candidates to also represent standards for DUG-07/R-02, DUG-08, DUG-09, DUG-10 and H-01.

Reference Area for DUG-07/R-02

Existing reference areas were considered for their appropriateness to represent future success standards for a **Sagebrush/Mountain Brush community**, the community that has been proposed for disturbance by future drilling activities at Drill Site DUG-07/R-02. Previously studied drill

sites have used a similar community as reference area for future revegetation success standards. One such reference area called **Mountain Brush/Sagebrush/Snowberry Reference Area** could also be used for DUG-07/R-02. This reference area had more *overstory* cover than DUG-07/R-02. Moreover, adding it to the *understory* cover resulted in the total living cover for this reference area to be significantly greater than the proposed disturbed area. It is therefore suggested at this time to use the *understory* cover value only of this reference area for the future cover success standard when it is sampled at the time of final reclamation (because it is closer to the total living cover value of DUG-07at this time).

Because the proposed disturbed area had a lower density value that was statistically significant, a lower value for the final standard could be proposed (e.g. 2,000 plants per acre like those proposed below; another possibility could be 3,680 plants per acre as are currently supported in the in the proposed disturbed area here).

As mentioned, the **Mountain Brush/Sagebrush/Snowberry Reference Area** has been chosen for future revegetation success standards for DUG-07/R-02 [as well as G-16, G-17, G-22, G-26 and G-29 in previous reports (also DUG-10 below)]. The most common species in this reference area were big sagebrush, Watson's penstemon, snowberry and serviceberry (Table 16).

The total living combined cover here was 64.50%; 57.00% (the proposed cover standard) was from understory and 7.50% from overstory (Table 17-A). Woody species dominated the composition at 54.44%, followed by forbs at 28.08% and grasses at 17.49% (Table 17-B).

The woody species density was estimated at 5,137 plants per acres and was dominated by big sagebrush and snowberry (Table 18).

Revegetation Success Standards for DUG-08

When choosing an appropriate reference area for DUG-08, it was more difficult. This proposed drill site supported plant communities that had been *disturbed previously* by other activities. Consequentially, choosing a reference area that was a natural, undisturbed plant community to represent future revegetation success standards may represent too stringent or unjust standards for this site because it had already been disturbed and the data revealed a non-native, or "unnatural" condition currently exists for this community.

It is therefore recommended that the revegetation success standards for DUG-08 be preset as the following:

- Total Living Cover: 57.00% (this was the current understory cover value to the nearest percent; also, final total living cover must be dominated by desirable, native, non-weedy plant species).
- Woody Species Density: 2,000 individuals per acre.
- Diversity: None (but living cover must be dominated by desirable, native non-weedy plant species).

Revegetation Success Standards for DUG-09

Like DUG-08 above, choosing an appropriate reference area for DUG-09 was more difficult for similar reasons. This proposed drill site also supported a plant community that had been *disturbed previously* by other activities. Similarly, choosing a reference area that was a natural, undisturbed plant community to represent future revegetation success standards may represent too stringent or unjust standards for this site because it had already been disturbed and the data revealed a non-native, or "unnatural" condition for this community.

It is therefore recommended that the revegetation success standards for this sites be set as the following:

- Total Living Cover: 49.00% (the current understory cover to the nearest percent; also, final total living cover must be dominated by desirable, native, non-weedy plant species).
- Woody Species Density: 2,000 individuals per acre.
- Diversity: None (but living cover must be dominated by desirable, native non-weedy plant species).

Reference Area for DUG-10

Like DUG-07/R-02, the proposed drill site for DUG-10 supported a transitional plant community, but was called a **Mountain Brush/Sagebrush community**. Also like DUG-07, the total living cover here was somewhat less than that of the existing reference area called **Mountain Brush/Sagebrush/Snowberry Reference Area**. Therefore, it is proposed at this

time to use the understory cover value of this reference area at the time of final reclamation and revegetation. The woody species density and diversity values that exist in the reference area at the time of final revegetation could be used for the success standards at that time. (Refer to Tables 16 through 18 for summary tables and data for this reference area).

Reference Area for H-01

A reference area has been chosen to represent future revegetation success standards for Drill Site H-01. The **Aspen/Maple/Douglas Fir Reference Area** also represented revegetation success standards for a number of previous drill sites (i.e. De-gas sites: G-1, G-4 and G-6).

As shown on Table 19, the dominant plants of the overstory quadrats were big-tooth maple and aspen (*Populus tremuloides*). Dominant understory cover was from the following species: big-tooth maple, Douglas fir, muttongrass *(Poa fendleriana)* and bedstraw (*Galium bifolium*). Total living cover in this reference area was 89.67%, 45.67% of which was overstory cover (Table 20-A). Woody species comprised 51.60%, forbs 33.65% and grasses14.76% of the living cover (Table 20-B).

Total woody species density was estimated at 4,265 individuals per acre, and mostly comprised of snowberry, big-toothed maple, aspen and Douglas Fir (Table 21). Because this value is so much higher than the proposed disturbed H-01, a more realistic value, one closer to its present value, of 1,000 plants per acre is recommended.

Threatened & Endangered Plant Species Survey

State databases revealed only one potential sensitive species to be located in the vicinity of the proposed disturbed drill sites. This plant was canyon vetch (*Hedysarum occidentale* var.*canone*). Each proposed disturbed area was surveyed in the field for canyon vetch (or any other unusual or sensitive plants). This survey was done prior to recording the quantitative data used to describe the major plant community of the study area. In addition, more searching for sensitive species was done during quantitative sampling of the areas. Canyon vetch was located in the drainage where H-01 has been proposed, but the plants was not found on the pad or other areas that have been proposed for disturbance in this area. No other rare, sensitive, threatened or endangered species were located on the proposed drill sites.

Summary & Conclusions

Figures 1and 2 show the statistical summaries of the comparisons between the areas proposed for disturbance by drilling activities and the proposed standards and reference area values for living covers and woody species densities.

The findings of the statistical analyses and the proposed standards for revegetation success can be summarized by the following.

For **DUG-07/R-02**, Student's t-test indicated that there was no significant difference between the total living cover (understory & overstory combined) and the cover (understory only) of the reference area. Woody species density of DUG-07/R-02 was significantly less than the reference area. The following standards for future revegetation success are therefore recommended:

- *Total Living Cover: Understory cover of the Mtn. Brush/Sagebrush Reference Area*
- *Woody Species Density: 2,000 individuals per acre.*

The vegetation at the proposed drill site **DUG-08** has been disturbed previously. Therefore, the proposed standards for future revegetation success are as follows:

- *Total Living Cover: 57.00%*
- *Woody Species Density: 2,000 individuals per acre.*

The vegetation at the proposed drill site **DUG-09** has also been disturbed previously. Therefore, the proposed standards for future revegetation success are as follows:

- *Total Living Cover: 49.00%*
- *Woody Species Density: 2,000 individuals per acre.*

For **DUG-10**, statistical tests indicated that there was no significant difference between the total living cover (understory & overstory combined) and the cover (understory only) of the reference area. Furthermore, there was no statistical difference between the woody species density of DUG-10 with the reference area. The following standards for future revegetation success are therefore proposed:

- *Total Living Cover: Understory cover of the Mtn. Brush/Sagebrush Reference Area*
- *Woody Species Density: Density of the Mtn. Brush/Sagebrush Reference Area.*

For **H-01**, statistical comparisson indicated that there was no significant difference between the total living cover (understory & overstory combined) and the total living cover (understory & overstory combined) of the reference area. However, there was a difference statistically between the woody species density of H-01 and the reference area. The following standards for future revegetation success are proposed:

- *Total Living Cover: Total living cover of the Aspen/Maple/Douglas Fir Reference Area*
- *Woody Species Density: 1,000 individuals per acre.*

Figure 1. A statistical comparison (Student's t-tests) of the **total living cover** between the proposed disturbed sites and their reference areas.

	$\bar{x}$	s	n	t	df	SL
Site DUG-07/R-02						
Proposed Disturbed	51.00 (o+u)	14.11	20			
Reference Area (MB/SB):	57.00 (u)	12.08	20			
t-test				1.445	38	N.S.
Site DUG-08						
Previously Disturbed:	56.67	14.22	15			
Reference Area:	57.00(pss)					
t-test				n/a	n/a	n/a
Site DUG-09						
Previously Disturbed:	49.33	11.23	15			
Reference Area:	49.00(pss)					
t-test				n/a	n/a	n/a
Site DUG-10						
Proposed Disturbed	54.50 (o+u)	13.12	20			
Reference Area (MB/SB):	57.00 (u)	12.08	20			
t-test				-0.627	38	N.S.
Site H-01						
Proposed Disturbed	77.33 (o+u)	19.65	15			
Reference Area (A/M/DF):	89.67 (o+u)	35.19	30			
t-test				-1.259	43	N.S.

$\bar{x}$ = mean
s = standard deviation
n = sample size
t = Student's t-value
df = degrees of freedom
n/a = not applicable
p = probability
SL= Significance Level
N.S.=Non-Significant
MB/SB = Mtn. Brush/Sagebrush
A/M/DF= Aspen/Maple/Douglas Fir
u = understory
o = overstory
pss= pre-set standards
(see "REFERENCE AREA CONSIDERATIONS" in the RESULTS section)

Figure 2. A statistical comparison (Student's t-tests) of the **woody species density** between the proposed disturbed de-gas sites and their reference areas.

	$\bar{x}$	s	n	t	df	SL
Site DUG-07/R-02						
Proposed Disturbed	3678.83	1825.83	20			
Reference Area (MB/SB):	5136.52	2140.91	20			
t-test				-2.317	38	p<0.05
Site DUG-08						
Previously Disturbed:	6137.74	5566.84	15			
Reference Area:	2000.00 (pss)					
t-test				n/a	n/a	n/a
Site DUG-09						
Previously Disturbed:	339.00	332.70	15			
Reference Area:	2000.00 (pss)					
t-test				n/a	n/a	n/a
Site DUG-10						
Proposed Disturbed	4922.94	1926.70	20			
Reference Area (MB/SB):	5136.52	2140.91	20			
t-test				-0.332	38	N.S.
Site H-01						
Proposed Disturbed	1060.52	1820.99	15			
Reference Area (A/M/DF):	4264.89	2448.14	30			
t-test				-4.4478	43	p<0.01

$\bar{x}$ = mean
s = standard deviation
n = sample size
t = Student's t-value
df = degrees of freedom
n/a = not applicable
p = probability
SL= Significance Level
N.S.=Non-Significant
MB/SB = Mtn. Brush/Sagebrush
A/M/DF= Aspen/Maple/Douglas Fir
u = understory
o = overstory
pss= pre-set standards
(see "REFERENCE AREA CONSIDERATIONS" in the RESULTS section)

Table 1: Dugout Mine Drill Site DUG-07/R-02. Total cover, standard deviation and frequency by species (2008).

Sagebrush/ Mtn. Brush Community	Mean Percent	Standard Deviation	Percent Frequency
OVERSTORY			
Amelanchier utahensis	1.75	5.76	10.00
Pseudotsuga menziesii	1.25	5.45	5.00
UNDERSTORY			
TREES & SHRUBS			
Amelanchier utahensis	1.50	5.50	10.00
Artemisia tridentata	17.00	15.20	75.00
Chrysothamnus viscidiflorus	1.50	4.77	10.00
Symphoricarpos oreophilus	6.00	13.93	30.00
FORBS			
Agoseris glauca	0.25	1.09	5.00
Astragalus sp.	0.25	1.09	5.00
Balsamorhiza sagittata	0.75	3.27	5.00
Calochortus nuttallii	0.25	1.09	5.00
Cynoglossum officinale	0.25	1.09	5.00
Eriogonum sp.	0.50	1.50	10.00
Hedysarum boreale	0.50	1.50	15.00
Machaeranthera grindelioides	1.25	2.68	5.00
Penstemon eatonii	0.50	2.18	5.00
Penstemon watsonii	1.25	3.83	10.00
Petradoria pumila	0.75	1.79	10.00
Phlox longifolia	1.25	3.11	15.00
Taraxacum officinale	0.50	1.50	10.00
Tragopogon dubius	0.50	1.50	10.00
GRASSES			
Elymus salinus	5.00	8.06	30.00
Elymus trachycaulus	2.00	5.79	15.00
Poa secunda	4.85	6.99	45.00
Stipa columbiana	1.47	3.02	20.00

Table 2: Dugout Mine Drill Site DUG-07/R-02.
Total cover, standard deviation and sample size (2008).

Sagebrush/ Mtn. Brush Community	Mean Percent	Standard Deviation	Sample Size
A. TOTAL COVER			
Overstory (o)	3.00	7.65	20
Understory (u)	48.00	11.22	20
Litter	14.75	9.68	20
Bareground	25.25	11.88	20
Rock	12.00	9.80	20
Total Living Cover (o+u)	51.00	14.11	20
B. % COMPOSITION			
Trees/Shrubs	51.32	23.96	20
Forbs	19.15	18.08	20
Grasses	29.54	17.82	20

Table 3: Dugout Mine Drill Site DUG-07/R-02.
Woody Species Density (2008).

SPECIES	Individuals Per Acre
Amelanchier utahensis	183.94
Artemisia tridentata	2483.21
Cercocarpus montanus	91.97
Chrysothamnus viscidiflorus	229.93
Opuntia polyacantha	45.99
Ribes sp.	45.99
Symphoricarpos oreophilus	597.81
TOTAL	**3678.83**

Table 4: Dugout Mine Drill Site DUG-08. Total cover, standard deviation and frequency by species (2008).

Previously Disturbed Aspen/Conifer Community	Mean Percent	Standard Deviation	Percent Frequency
TREES & SHRUBS			
Artemisia tridentata	10.67	8.54	80.00
Chrysothamnus nauseosus	0.67	2.49	6.67
Ribes cereum	1.33	3.86	13.33
Rosa woodsii	4.00	6.88	33.33
Symphoricarpos oreophilus	8.67	12.84	40.00
FORBS			
Achillea millefolium	1.00	2.71	13.33
Aquilegia caerulea	0.33	1.25	6.67
Circium sp.	0.33	1.25	6.67
Cynoglossum officinale	8.67	10.40	53.33
Eriogonum engelmannii	0.33	1.25	6.67
Geranium richardsonii	0.67	2.49	6.67
Haplopappus lanceolatus	1.33	2.87	20.00
Taraxacum officinale	4.67	4.64	53.33
Urtica dioica	3.00	6.27	33.33
GRASSES			
Bromus tectorum	0.67	2.49	6.67
Poa pratensis	9.33	9.64	60.00
Stipa hymenoides	1.00	2.00	20.00

Table 5: Dugout Mine Drill Site DUG-08.
Total cover, standard deviation and sample size (2008).

A. TOTAL COVER			
Previously Disturbed Aspen/Conifer Community	Mean Percent	Standard Deviation	Sample Size
Total Living Cover	56.67	14.22	15
Litter	20.33	9.21	15
Bareground	18.93	17.61	15
Rock	4.07	4.95	15
B. % COMPOSITION			
Trees/Shrubs	44.55	19.89	15
Forbs	38.02	23.58	15
Grasses	17.43	12.61	15

Table 6: Dugout Mine Drill Site DUG-08. Woody Species Density (2008).

SPECIES	Individuals Per Acre
Artemisia tridentata	3580.35
Ribes cereum	204.59
Rosa woodsii	1022.96
Symphoricarpos oreophilus	1329.84
TOTAL	**6137.74**

Table 7: Dugout Mine Drill Site DUG-09. Total cover, standard deviation and frequency by species (2008).

Previously Disturbed Conifer/Aspen Community	Mean Percent	Standard Deviation	Percent Frequency
TREES & SHRUBS			
Artemisia tridentata	4.00	6.88	33.33
Rubus idaeus	0.33	1.25	6.67
Symphoricarpos oreophilus	4.00	11.28	20.00
FORBS			
Achillea millefolium	3.67	8.84	26.67
Circium sp.	0.33	1.25	6.67
Collomia linearis	0.67	1.70	13.33
Cynoglossum officinale	15.33	11.61	86.67
Geranium richardsonii	4.00	11.28	20.00
Taraxacum officinale	0.33	1.25	6.67
GRASSES			
Bromus carinatus	12.67	10.47	80.00
Bromus tectorum	0.67	2.49	6.67
Dactylis glomeratus	1.67	6.24	6.67
Poa pratensis	1.67	3.50	20.00

Table 8: Dugout Mine Drill Site DUG-09.
Total cover, standard deviation and sample size (2008).

Previously Disturbed Conifer/Aspen Community	Mean Percent	Standard Deviation	Sample Size
A. TOTAL COVER			
Total Living Cover	49.33	11.23	15
Litter	11.33	5.31	15
Bareground	29.67	13.84	15
Rock	9.67	5.62	15
B. % COMPOSITION			
Trees/Shrubs	15.36	21.76	15
Forbs	49.00	26.63	15
Grasses	35.64	20.87	15

Table 9: Dugout Mine Drill Site DUG-09. Woody Species Density (2008).

SPECIES	Individuals Per Acre
Artemisia tridentata	152.55
Cercocarpus montanus	5.65
Chrysothamnus nauseosus	11.30
Lonicera involucrata	5.65
Populus tremuloides	28.25
Pseudotsuga menziesii	33.90
Ribes sp.	5.65
Rubus idaeus	22.60
Symphoricarpos oreophilus	73.45
TOTAL	**339.00**

Table 10: Dugout Mine Drill Site DUG-10 and Access Road. Total cover, standard deviation and frequency by species (2008).

Mtn. Brush/Sagebrush Community (with scattered Pinyon-Juniper & Conifer)	Mean Percent	Standard Deviation	Percent Frequency
OVERSTORY			
Pseudotsuga menziesii	1.00	4.36	5.00
UNDERSTORY			
TREES & SHRUBS			
Amelanchier utahensis	5.75	11.32	30.00
Artemisia tridentata	17.50	11.35	95.00
Chrysothamnus viscidiflorus	1.00	2.55	15.00
Pseudotsuga menziesii	0.75	3.27	5.00
Rosa woodsii	0.75	3.27	5.00
Symphoricarpos oreophilus	4.00	7.68	30.00
FORBS			
Agoseris glauca	0.25	1.09	5.00
Calochortus nuttalli	0.75	1.79	10.00
Castilleja rhexifolia	2.00	3.67	25.00
Chaenactis douglasii	0.25	1.09	5.00
Haplopappus richardsonii	2.50	3.71	35.00
Hedysarum boreale	1.00	2.00	20.00
Lupinus argenteus	1.00	2.55	15.00
Machaeranthera grindelioides	0.25	1.09	5.00
Penstemon watsonii	4.75	7.33	40.00
GRASSES			
Elymus salinus	6.75	6.94	60.00
Elymus trachycaulus	0.50	1.50	10.00
Koeleria nitida	0.25	1.09	5.00
Poa pratensis	0.25	1.09	5.00
Poa secunda	3.00	5.57	25.00
Stipa columbiana	0.25	1.09	5.00

Table 11: Dugout Mine Drill Site DUG-10 and Access Road.
Total cover, standard deviation and sample size (2008).

Mtn. Brush/Sagebrush Community (with scattered Pinyon-Juniper & Conifer)	Mean Percent	Standard Deviation	Sample Size
A. TOTAL COVER			
Overstory (o)	1.00	4.36	20
Understory (u)	53.50	13.05	20
Litter	14.10	10.44	20
Bareground	23.75	14.65	20
Rock	8.65	9.24	20
Total Living Cover (o+u)	54.50	13.12	20
B. % COMPOSITION			
Trees/Shrubs	51.94	22.17	20
Forbs	24.84	18.77	20
Grasses	23.22	17.45	20

Table 12: Dugout Mine Drill Site DUG-10 and Access Road. Woody Species Density (2008).

SPECIES	Individuals Per Acre
Amelanchier utahensis	1415.35
Artemisia tridentata	2399.93
Chrysothamnus viscidiflorus	184.61
Juniperus osteosperma	61.54
Pseudotsuga menziesii	123.07
Rosa woodsii	123.07
Symphoricarpos oreophilus	615.37
TOTAL	**4922.94**

Table 13: Dugout Mine Drill Site H-01. Total cover, standard deviation and frequency by species (2008).

Maple/Pinyon-Juniper/Conifer/Snowberry Transitional Community	Mean Percent	Standard Deviation	Percent Frequency
OVERSTORY			
Abies concolor	9.33	24.07	13.33
Acer glabrum	2.33	8.73	6.67
Acer grandidentatum	2.67	6.80	13.33
Juniperus osteosperma	6.33	18.12	13.33
Juniperus scopulorum	1.67	6.24	6.67
Pseudotsuga menziesii	6.33	16.78	13.33
UNDERSTORY			
TREES & SHRUBS			
Acer glabrum	1.67	6.24	6.67
Acer grandidentatum	13.33	23.36	26.67
Artemisia tridentata	4.00	10.36	13.33
Juniperus osteosperma	2.67	6.80	13.33
Juniperus scopulorum	1.33	3.40	13.33
Pinus edulis	0.67	2.49	6.67
Pseudotsuga menziesii	0.67	2.49	6.67
Symphoricarpos oreophilus	14.33	15.15	53.33
FORBS			
Artemisia dracunculus	6.33	10.72	40.00
Erigeron sp.	0.33	1.25	6.67
Penstemon sp.	0.33	1.25	6.67
Senecio integerrimus	2.33	5.44	20.00
GRASSES			
Elymus spicatus	0.67	2.49	6.67

Table 14: Dugout Mine Drill Site H-01.
Total cover, standard deviation and sample size (2008).

Maple/Pinyon-Juniper/Conifer/Snowberry Transitional Community	Mean Percent	Standard Deviation	Sample Size
A. TOTAL COVER			
Overstory (o)	28.67	26.67	15
Understory (u)	48.67	15.54	15
Litter	24.60	15.44	15
Bareground	16.20	13.01	15
Rock	10.53	11.15	15
o + u	77.33	19.65	15
B. % COMPOSITION			
Trees/Shrubs	80.71	29.51	15
Forbs	17.96	29.45	15
Grasses	1.33	4.99	15

Table 15: Dugout Mine Drill Site H-01. Woody Species Density (2008).

Maple/Pinyon-Juniper/Conifer/Snowberry Transitional Community	
SPECIES	**Individuals Per Acre**
Acer glabrum	70.70
Acer grandidentatum	247.45
Artemisia tridentata	194.43
Juniperus osteosperma	106.05
Juniperus scopulorum	70.70
Pinus edulis	35.35
Pseudotsuga menziesii	17.68
Rosa woodsii	35.35
Symphoricarpos oreophilus	282.81
TOTAL	**1060.52**

Table 16. Dugout Mine: Mtn. Brush/Sagebrush/Snowberry Reference Area for Drill Site DUG-07 and DUG-10 (also for G-16, G-17, G-22, G-26 & G-29). Total Cover, Standard Deviation and Sample Size (2005).

Mtn. Brush/Sagebrush/Snowberry Reference Area	Mean Percent	Standard Deviation	Percent Frequency
OVERSTORY			
Amelanchier utahensis	6.75	12.58	25.00
Juniperus scopulorum	0.75	3.27	5.00
UNDERSTORY			
TREES & SHRUBS			
Amelanchier utahensis	7.00	16.16	35.00
Artemisia tridentata	15.25	14.79	75.00
Juniperus scopulorum	0.25	1.09	5.00
Symphoricarpos oreophilus	10.50	15.96	50.00
FORBS			
Astragalus sp.	0.25	1.09	5.00
Lupinus argenteus	4.05	4.60	55.00
Penstemon watsonii	10.70	7.89	80.00
GRASSES			
Elymus salinus	0.25	1.09	5.00
Elymus spicatus	2.00	3.67	25.00
Elymus trachycaulus	2.00	3.67	25.00
Poa pratensis	2.25	5.36	20.00
Poa secunda	2.50	6.22	20.00

Table 17. Dugout Mine: Mtn. Brush/Sagebrush/Snowberry Reference Area for for Drill Site DUG-07 and DUG-10 (also for G-16, G-17, G-22, G-26 & G-29). Total cover, standard deviation and sample size (2005).

Mtn. Brush/Sagebrush/Snowberry Reference Area	Mean Percent	Standard Deviation	Sample Size
A. TOTAL COVER			
Overstory (o)	7.50	12.60	20
Understory (u)	57.00	12.08	20
Litter	18.60	7.52	20
Bareground	15.65	13.13	20
Rock	8.75	9.59	20
Total Living Cover (o+u)	64.50	19.49	20
B. % COMPOSITION			
Trees/Shrubs	54.44	26.60	20
Forbs	28.08	17.03	20
Grasses	17.49	14.43	20

Table 18. Dugout Mine: Mtn. Brush/Sagebrush/Snowberry Reference Area for for Drill Site DUG-07 and DUG-10 (also for G-16, G-17, G-22, G-26 & G-29). Woody Species Densities (2005).

Mtn. Brush/Sagebrush/Snowberry Reference Area	
Species	**Individuals Per Acre**
Amelanchier utahensis	834.68
Artemisia tridentata	2375.64
Juniperus scopulorum	64.21
Symphoricarpos oreophilus	1861.99
TOTAL	**5136.52**

Table 19. Dugout Mine: Aspen/Maple/Douglas Fir Reference Area **for Drill Site H-01 (also for Borehole Sites G-1, G-4 & G-6). Mean percent cover, standard deviation and percent frequency by species. Total Cover, Standard Deviation and Frequency by Species (2003).**

Aspen/Maple/Douglas Fir Reference Area	Mean Percent	Standard Deviation	Percent Frequency
OVERSTORY			
Acer grandidentatum	22.67	27.47	53.33
Populus tremuloides	23.00	29.88	40.00
UNDERSTORY			
Trees & Shrubs			
Acer grandidentatum	7.43	9.92	53.33
Juniperus communis	1.00	5.39	3.33
Mahonia repens	0.77	2.39	10.00
Populus tremuloides	3.43	7.24	30.00
Pseudotsuga menziesii	6.50	11.77	30.00
Rosa woodsii	0.33	1.80	3.33
Symphoricarpos oreophilus	4.47	6.99	46.67
Forbs			
Achillea millefolium	0.43	1.09	20.00
Aquilegia caerulea	0.43	1.33	10.00
Delphinium nelsonii	1.23	2.17	26.67
Erigeron engelmannii	0.17	0.90	3.33
Galium bifolium	4.77	6.67	20.00
Osmorhiza depauperata	1.80	4.66	26.67
Penstemon watsonii	0.33	1.80	3.33
Phlox longifolia	0.67	1.58	16.67
Smilacina stellata	0.17	0.90	3.33
Taraxacum officinale	1.77	2.56	40.00
Thalictrum fendleri	1.43	2.12	33.33
Viola adunca	0.93	2.21	20.00
Grasses			
Elymus trachycaulus	0.33	1.25	6.67
Poa fendleriana	5.60	6.06	73.33

Table 20. Dugout Mine: Aspen/Maple/Douglas Fir Reference Area for Drill Site H-01 (also for Borehole Sites G-1, G-4 & G-6). Total Cover, Standard Deviation and Sample Size (2003).

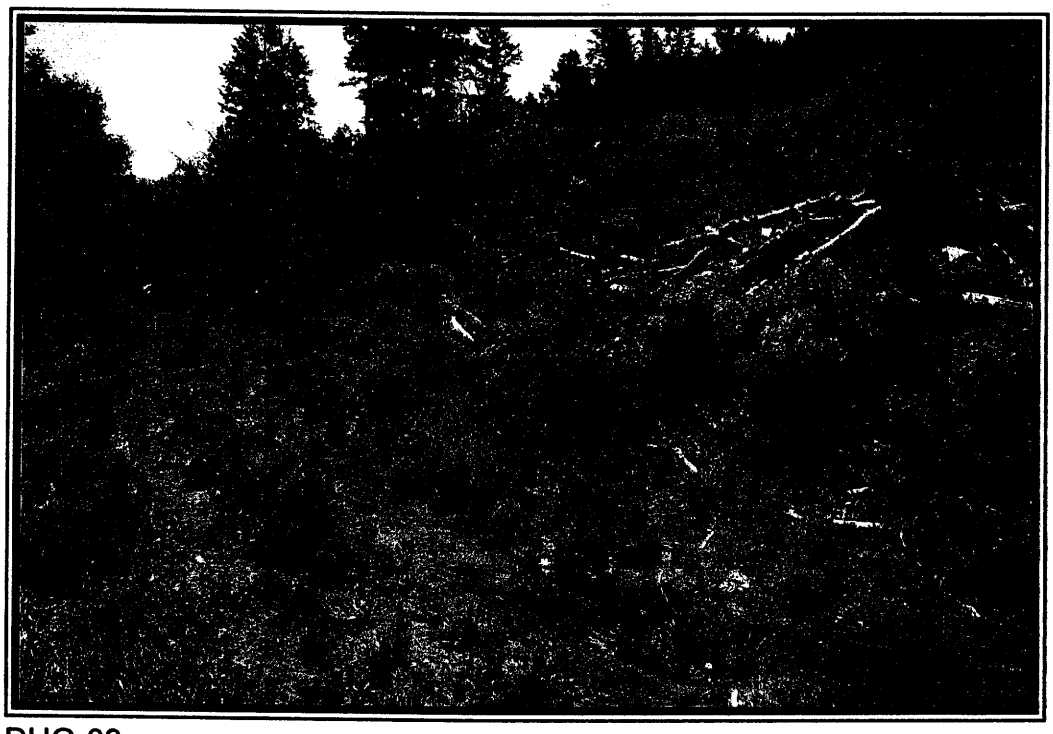
Aspen/Maple/Douglas Fir Reference Area			
TOTAL COVER	**% Mean Cover**	**Standard Deviation**	**Sample Size**
Overstory Cover (o)	45.67	34.37	30
Understory Cover (u)	44.00	13.87	30
Litter	49.53	14.06	30
Bareground	5.40	5.00	30
Rock	1.07	0.25	30
Total Living Cover (o+u)	89.67	35.19	30
COMPOSITION (u)			
Trees/Shrubs	51.60	26.09	30
Forbs	33.65	19.35	30
Grasses	14.76	15.61	30

Table 21. Dugout Mine: Aspen/Maple/Douglas Fir Reference Area for Drill Site H-01 (also for Borehole Sites G-1, G-4 & G-6). Woody Species Densities (2003).

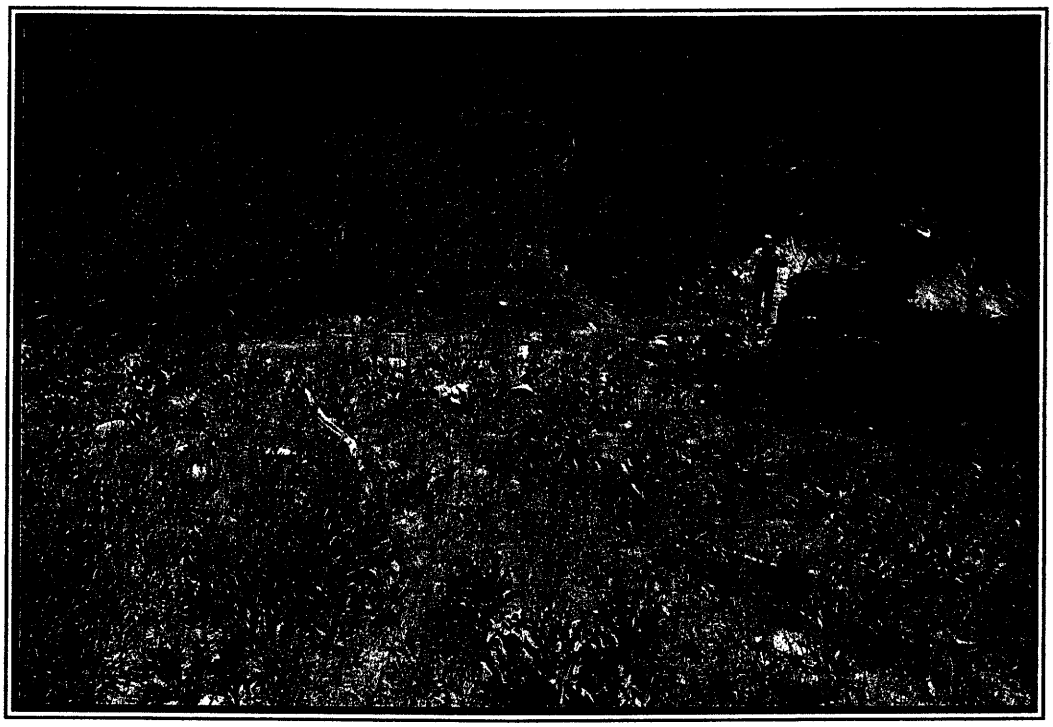
Aspen/Maple/Douglas Fir Reference Area	
Species	**Individuals Per Acre**
Acer grandidentatum	1208.39
Artemisia tridentata var. vaseyana	35.54
Juniperus communis	35.54
Populus tremuloides	1030.68
Pseudotsuga menziesii	533.11
Rosa woodsii	106.62
Symphoricarpos oreophilus	1315.01
TOTAL	**4264.89**

Color Photographs Of the Sample Areas

DUG-07/R02



DUG-08

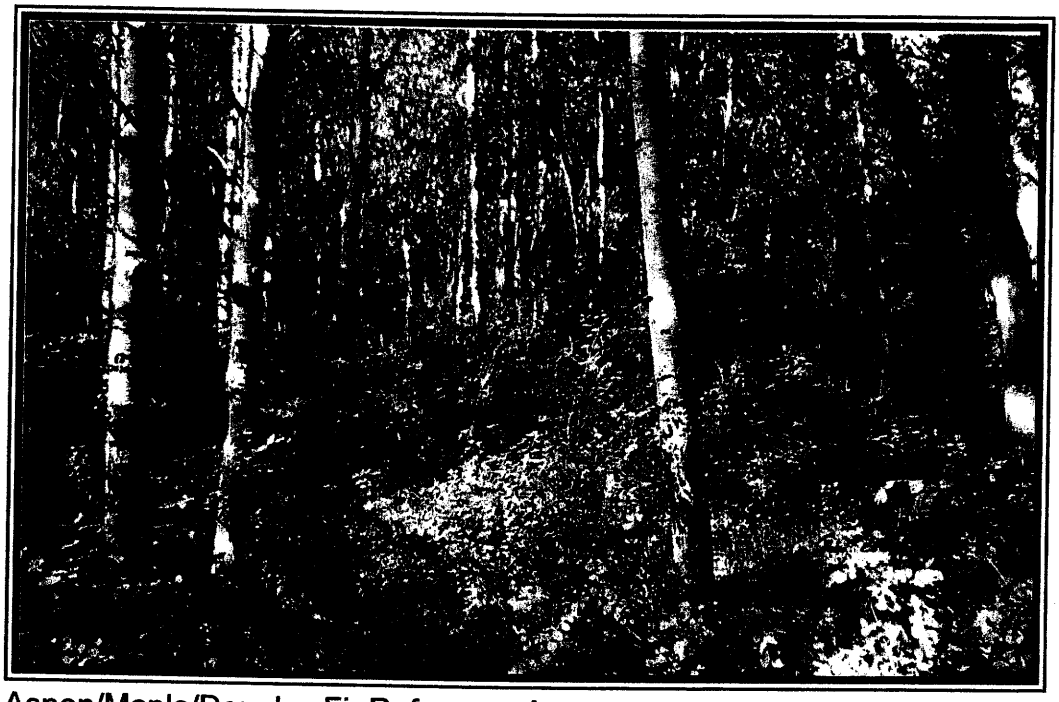


DUG-09

DUG-10

H-01

Mtn. Brush/Sagebrush Reference Area



Aspen/Maple/Douglas Fir Reference Area

Carbon County List of Utah's Federally Listed Threatened(T), Endangered(E), and Candidate(C) Species

Disclaimer: This list was compiled using known species occurrences and species observations from the Utah Natural Heritage Program's Biodiversity Tracking and Conservation System (BIOTICS); other federally listed species likely occur in Utah Counties. This list includes both current and historic records. (Last updated on July 1, 2008).

Common Name	Scientific Name	Status
Uinta Basin Hookless Cactus	Sclerocactus glaucus	T
Clay Phacelia	Phacelia argillacea	E
Humpback Chub	Gila cypha	E
Bonytail	Gila elegans	E
Colorado Pikeminnow	Ptychocheilus lucius	E
Razorback Sucker	Xyrauchen texanus	E
Southwestern Willow Flycatcher	Empidonax traillii extimus	E
Black-footed Ferret	Mustela nigripes	E Extirpated

Created by the Utah Division of Wildlife Resources - July 1, 2008

DEFINITIONS

E
A taxon that is listed by the U.S. Fish and Wildlife Service as "endangered" with the probability of worldwide extinction.

E Experimental
An "endangered" taxon that is considered by the U.S. Fish and Wildlife Service to be "experimental and non-essential" in its designated use areas in Utah.

E, T, or C Extirpated
An "endangered," "threatened," or "candidate" taxon that is "extirpated" and considered by the U.S. Fish and Wildlife Service to no longer occur in Utah.

E or T Proposed
A taxon "proposed" to be listed as "endangered" or "threatened" by the U.S. Fish and Wildlife Service.

T
A taxon that is listed by the U.S. Fish and Wildlife Service as "threatened" with becoming endangered.

C
A taxon for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threats to justify it being a "candidate" for listing as endangered or threatened.

Note: Please contact the U.S. Fish and Wildlife Service (801-975-3330) for the purpose of consultation under the Endangered Species Act.

Created by the Utah Division of Wildlife Resources - July 1, 2008

CONCLUSIONS

Conclusions To Why the Threatened and Endangered Species In The List Created by the Utah Division of Wildlife Resources - July 1, 2008 For Carbon County Are Not Located on Exploration Drill Pads DUG-01 and DUG-02.

Uinta Basin Hookless Cactus (Threatened)

1. Not inventoried/discovered at the sites by Mt. Nebo Scientific, Inc, during their vegetation survey.
2. Populations occur on alluvial benches along the Green, Colorado and Gunnison Rivers and in the Pariette Draw south of Myton, Utah (NatureServe, Online Encyclopedia). The exploration drill sites are not on any of the aforementioned rivers, or south of Myton, Utah or on an alluvial bench to one of the aforementioned rivers.
3. Soils preferred by the cactus are coarse, gravelly river alluvium above the river flood plains. The drill sites soils are at elevations well above any river flood plain.

Clay Phacelia (Endangered)

1. Not inventoried/discovered at the sites by Mt. Nebo Scientific, Inc, during their vegetation survey.
2. The species in only known to grow on steep talus slopes west of Soldier Summit in Spanish Fork Canyon, Utah. The exploration drillings sites are southeast of Soldier Summit by approximately 35 miles.
3. According to the Center for Plant Conservation - National Collection of Endangered Plants, the only location in the world of this plant is Spanish Fork Canyon west of Soldier Summit in Utah.

Humpback Chub (Endangered)

The drill sites have no bodies of water within their disturbed area boundaries. The nearest body of water known to have fish which could receive storm event runoff from the sites is the Price River. From the drill sties the Price River is approximately 25 miles to the southeast.

Bonytail (Endangered)

The drill sites have no bodies of water within their disturbed area boundaries. The nearest body of water known to have fish which could receive storm event runoff from the sites is the Price River. From the drill sties the Price River is approximately 25 miles to the southeast.

Colorado Pikeminnow (Endangered)

The drill sites have no bodies of water within their disturbed area boundaries. The nearest body of water known to have fish which could receive storm event runoff from the sites is the Price River. From the drill sties the Price River is approximately 25 miles to the southeast.

Razorback Sucker (Endangered)

The drill sites have no bodies of water within their disturbed area boundaries. The nearest body of water known to have fish which could receive storm event runoff from the sites is the Price River. From the drill sties the Price River is approximately 25 miles to the southeast.

Southwestern Willow Flycatcher (Endangered)

No habitat for the flycatcher at the drill sites. The flycatcher' habitat consists of patchy to dense riparian vegetation along streams, reservoirs or other wetlands. The drill sites have no bodies of water within their disturbed area boundaries or immediately adjacent to the sites.

CONCLUSIONS (Continued)

Black-footed Ferret (Endangered Extirpated)
No habitat for the Black-footed Ferret at the drill sites, the elevation of the drill pads is too high for the ferret.

BLM Sensitive Plant Species List for Carbon County, Utah

Crypthantha creutzfeldtii
Crypthantha creutzfeldtii grows at elevations of 5,249 - 6,801 feet on barren clay knolls and shaley slopes of the mancos shale formations the elevation of the drill sites is 8,000 to 8,200 feet. Crypthantha creutzfeldtii usually grows in shadscale and mat saltbrush in silty clay soils that is often overlain by a veneer of fragments from the overlying sandstone member. The drill sites do not have shadscale or mat saltbrush growing on them and the elevation of the pads is at least 1,000 feet above the elevation where this plant would grow.

Phacelia utahensis
Grows in Great Basin cold desert shrub communities, typically in shale outcrops, along roadside edges and gravelly washes, but can be found in black, sandy, volcanic ash. Phacelia utahensis grows at elevations of 4,250 - 5,100 feet on 2-15% slopes, the elevation of the drill sites is 8,000 to 8,200 feet and the sites are flat, therefore you would not expect to find this species on the drill pads.

References:

Mt. Nebo Scientific, Inc., Letter Report (August 14, 2008), Appendix C, Notice of Intent to Conduct Minor Coal Exploration - Utah State Coal Lease ML-48435-OBA, August 2008.

Center for Plant Conservation Plant Profile (Phacelia argillacea) National Collection of Endangered Plants. Red Butte Garden and Arboretum, Sylvia Torti. www.center

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Heritage Data Management System, USDA, NRCS. 2002. The PLANTS Database, Version 3.5 (http://plants.usda.gov) National Data Center, Baton Rouge, LA 70874-4490 USA. Phacelia utahensis and Cryptantha creutzfeldt's

Kartesz, J.T. 1994. A synonymized checklist of the vascular flora of the United States, Canada and Greenland. 2nd edition. 2 vols. Timber Press, Portland, OR. Sclerocactus glaucus (J.A. Purpus ex K. Schum.) L. Benson, Uinta Basin Hookless Cactus, Nature Serve Explorer (www.natureserve.org)

NatureServe. 2008. NatureServe Explorer: An online excycolped1a of life. Nature Serve Explorer (www.natureserve.org), Arlington, Virginia. Phacelia utahensis (Atwood 1972, Phillips et al. 1982) Phacelia welshii (Stan Welch, Brigham Young University, Provo Utah 2003)

Unitt, Philip 1987. Empidonax traillii extimus: An endangered subspecies. We. Berids 18:137-162. San Diego Natural History Museum, P.O. Box 1390, San Diego, CA 92112

Unitt, Philip 1997. Winter range of the southwestern willow flycatcher (Empidonax traillii extimus) Report to Bureau of Reclamation, P.O. Box 9980, Phoenix, Arizona 85068-0980

Welsh, S.L.; Atwood, N.D.; Goodrich, S.; Higgins, L.C. 1993. A Utah flora. Provo, Utah; Brigham Young Univ. 986p. Clay Phacelia (Phacelia argillacea)

None of the species listed above are believed to exist at the drill site for exploration holes DUG-01 or DUG-02.

RAPTORS

There are no raptor nests inventoried during the 2008 inventory within one-half mile of the exploration holes.

Appendix D

Confidential Information
Archeological Report
Lab Analyses

CONFIDENTIAL

JON M. HUNTSMAN, JR.
Governor
GARY R. HERBERT
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
Division of Water Rights

MICHAEL R. STYLER
Executive Director

JERRY D. OLDS
State Engineer/Division Director

ORDER OF THE STATE ENGINEER
For Temporary Change Application Number 91-5024 (t34536)

Temporary Change Application Number 91-5024 (t34536) in the name of Canyon Fuel Company LLC, was filed on April 25, 2008, to add an additional place(s) of use and add an additional use(s) of or 12.00 acre-feet (af) of water as evidenced by Water Right Number 91-5024. Heretofore, the water has been diverted from an existing well located South 125 feet and East 2,307 feet from the NW Corner of Section 23, T13S, R12E, SLB&M (10-inch well, 300 feet deep). The water was stored in the following reservoir: Clarks Valley Reservoir - from March 31 to July 31, having a capacity of 460.5 acre-feet, inundating in all or portion(s) of Sections 10 and 15 T14S, R12E, SLB&M. The water was used for mining purposes. The water was used in all or portion(s) of Sections 9, 10, 11, 14, 15, 16, 17, 20, 21, 22 and 23 T13S, R12E, SLB&M.

Hereafter, it is proposed to divert 12.00 acre-feet of water from the same point as heretofore. The nature of use of the water is the same as heretofore but, in addition, the following use(s) are being added: the water is to be used for industrial purposes (dust suppression, fire protection, coal processing and drilling). The place of use of the water is to remain the same as heretofore, but adding all or portion(s) of Sections 17, 18, 19, 20 and 21 T13S, R13E, SLB&M.

Notice of this temporary change application was not published in a newspaper. It is the opinion of the State Engineer that it meets the criteria of Section 73-3-3 of the Utah Code for the approval of temporary change applications.

It is the opinion of the State Engineer that this change application can be approved without adversely affecting existing rights. The applicant is put on notice that diligence must be shown in pursuing the development of this application which can be demonstrated by the completion of the project as proposed in the change application.

It is, therefore, **ORDERED** and Temporary Change Application Number 91-5024 (t34536) is hereby **APPROVED** subject to prior rights.

This temporary change application shall expire one year from the date hereof.

It is the applicant's responsibility to maintain a current address with this office and to update ownership of their water right. Please notify this office immediately of any change of address or for assistance in updating ownership.

Your contact with this office, should you need it, is with the Southeastern Regional Office. The telephone number is 435-613-3750.

This Order is subject to the provisions of Administrative Rule R655-6-17 of the Division of Water Rights and to Sections 63-46b-13 and 73-3-14 of the Utah Code which provide for filing either a Request for Reconsideration with the State Engineer or an appeal with the appropriate District Court. A Request for Reconsideration must be filed with the State Engineer within 20 days of the date of this Order. However, a Request for Reconsideration is not a prerequisite to filing a court appeal. A court appeal must be filed within 30 days after the date of this Order, or if a Request for Reconsideration has been filed, within 30 days after the date the Request for Reconsideration is denied. A Request for Reconsideration is considered denied when no action is taken 20 days after the Request is filed.

Dated this 17 day of June, 2008.

Marc Stilson, P.E., Regional Engineer

Mailed a copy of the foregoing Order this 17 day of June, 2008 to:

Canyon Fuel Company LLC
City Place One Suite 300
St. Louis MO 63141

JON M. HUNTSMAN, JR.
Governor
GARY R. HERBERT
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
Division of Water Rights

MICHAEL R. STYLER
Executive Director

JERRY D. OLDS
State Engineer/Division Director

ORDER OF THE STATE ENGINEER
For Temporary Change Application Number [redacted]34537)

Temporary Change Application Number 91-409 (t34537) in the name of Canyon Fuel Company LLC, was filed on April 25, 2008, to add an additional point of diversion, add an additional place(s) of use and add an additional use(s) of 20.00 acre-feet (af) of water as evidenced by Water Right Number 91-409. Heretofore, the water has been diverted from a surface source located North 1,280 feet and West 1,200 feet from the SE Corner of Section 3, T14S, R12E, SLB&M.

Hereafter, it is proposed to divert 20.00 acre-feet of water from the same point as heretofore and from additional points located: (1) Surface - North 790 feet and East 1,485 feet from the SW Corner of Section 21, T13S, R13E, SLB&M; (2) Surface - North 1,070 feet and West 1,100 feet from the SE Corner of Section 19, T13S, R13E, SLB&M; (3) Surface - South 780 feet and East 25 feet from the NW Corner of Section 18, T13S, R13E, SLB&M; (4) Surface - North 1,070 feet and West 900 feet from the SE Corner of Section 20, T13S, R13E, SLB&M; (5) Surface - South 1,011 feet and East 1,322 feet from the NW Corner of Section 30, T13S, R13E, SLB&M; (6) Surface - North 3,500 feet and West 850 feet from the SE Corner of Section 19, T13S, R13E, SLB&M; (7) Surface - North 1,060 feet and East 2,590 feet from the SW Corner of Section 20, T13S, R13E, SLB&M; (8) Surface - North 1,400 feet and West 960 feet from the SE Corner of Section 21, T13S, R13E, SLB&M. The nature of use of the water is the same as heretofore but, in addition, the following use(s) are being added: the water is to be used for industrial purposes (dust suppression, fire protection, coal processing and drilling). The place of use of the water is to remain the same as heretofore, but adding all or portion(s) of Sections 13 and 14, T13S, R12E, SLB&M; and Sections 17, 18, 19, 20, 21, 28, 29 and 30 T13S, R13E, SLB&M.

Notice of this temporary change application was not published in a newspaper. It is the opinion of the State Engineer that it meets the criteria of Section 73-3-3 of the Utah Code for the approval of temporary change applications.

It is the opinion of the State Engineer that this change application can be approved without adversely affecting existing rights. The applicant is put on notice that diligence must be shown in pursuing the development of this application which can be demonstrated by the completion of the project as proposed in the change application.

It is, therefore, **ORDERED** and Temporary Change Application Number 91-409 (t34537) is hereby **APPROVED** subject to prior rights.

This temporary change application shall expire one year from the date hereof.

It is the applicant's responsibility to maintain a current address with this office and to update ownership of their water right. Please notify this office immediately of any change of address or for assistance in updating ownership.

Inasmuch as this application proposes to divert water from a surface source, the applicant is required to contact the Stream Alteration Section of the Division of Water Rights at 801-538-7240 to obtain a Stream Alteration permit in addition to this Temporary Change Application.

Your contact with this office, should you need it, is with the Southeastern Regional Office. The telephone number is 435-613-3750.

This Order is subject to the provisions of Administrative Rule R655-6-17 of the Division of Water Rights and to Sections 63-46b-13 and 73-3-14 of the Utah Code which provide for filing either a Request for Reconsideration with the State Engineer or an appeal with the appropriate District Court. A Request for Reconsideration must be filed with the State Engineer within 20 days of the date of this Order. However, a Request for Reconsideration is not a prerequisite to filing a court appeal. A court appeal must be filed within 30 days after the date of this Order, or if a Request for Reconsideration has been filed, within 30 days after the date the Request for Reconsideration is denied. A Request for Reconsideration is considered denied when no action is taken 20 days after the Request is filed.

Dated this 17 day of June, 2008.

Marc Stilson, P.E., Regional Engineer

Mailed a copy of the foregoing Order this 17 day of June, 2008 to:

Canyon Fuel Company LLC
Attn: Property Administration
City Place One, Suite 300
St. Louis MO 63141

Canyon Fuel Company, LLC
Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542

April 25, 2008

Mr. Mark Stilson
Utah Division of Water Rights
319 North Carbonville Road, Suite B
Price, Utah 84501

RE: Application for Temporary Change of Water – Water Right No. 91-409
Application for Temporary Change of Water – Water Right No. 91-5024
Application for Permanent Change of Water – Water Right No. 91-5024

Dear Mark:

Attached please find copies of applications for each of the changes listed above. A check for the fees and the original signature pages will be delivered to your office on Monday April 28, 2008. The delay in delivery of originals is due to a miscommunication between offices in Colorado and Utah and with the overnight shipping company.

If you have any questions, please call me at (435) 636-2869.

Sincerely yours,

Vicky S Miller

Vicky S. Miller

Cc: Gene DiClaudio
Dave Spillman
Alex Papp
Doug Downing
Scott Kehrer
Don Soper

APPLICATION FOR TEMPORARY CHANGE OF WATER

Rec. by_____

Fee Paid

$_____

STATE OF UTAH

For the purpose of obtaining permission to make a temporary change of water in the State of Utah, application is hereby made to the State Engineer, based upon the following showing of facts, submitted in accordance with the requirements of Section 73-3-3 Utah Code Annotated 1953, as amended.

*WATER RIGHT NO. 91 - 409 *APPLICATION NO. t_____-_____-_____

Changes are proposed in (check those applicable)

X point of diversion. X place of use. X nature of use. X period of use.

1. **OWNER INFORMATION**
   Name: Canyon Fuel Company, LLC *Interest:_____%
   Address: City Place One, Suite 300
   City: St. Louis State: MO Zip Code: 63141

2. ***PRIORITY OF CHANGE:**_____ ***FILING DATE:**_____

3. **RIGHT EVIDENCED BY:**_____

   Prior Approved Temporary Change Applications for this right: t27967

**********HERETOFORE**********

4. **QUANTITY OF WATER:** 6.2 cfs and/or 485.40 ac-ft.
5. **SOURCE:** Pace Canyon Creek
6. **COUNTY:** Carbon
7. **POINT(S) OF DIVERSION:** N 1280 ft. W 1200 ft. from SE Cor., Sec. 3, T14S, R12E, SLB&M

   Description of Diverting Works: Diversion Dam

8. **POINT(S) OF REDIVERSION**
   The water has been rediverted from_____ at a point:_____

   Description of Diverting Works:_____

9. **POINT(S) OF RETURN**
   The amount of water consumed is _____ cfs or_____ ac-ft.
   The amount of water returned is_____ cfs or_____ ac-ft.
   The water has been returned to the natural stream/source at a point(s):_____

These items are to be completed by the Division of Water Rights.

[redacted] *Temporary Change* [redacted]

10. NATURE AND PERIOD OF USE

Irrigation:	From 04/01	to 09/30
Stockwatering:	From 01/01	to 12/31
Domestic:	From	to
Municipal:	From	to
Mining:	From	to
Power:	From	to
Other:	From	to

11. PURPOSE AND EXTENT OF USE

Irrigation 196.84 acres. Sole supply of 121.35 acres.
Stockwatering (number and kind): 810 ELU
Domestic: _____ Families and/or _____ Persons.
Municipal (name): _____
Mining: _____ Mining District in the _____ Mine.
Ores mined: _____
Power: Plant name: _____ Type: _____ Capacity: _____
Other (describe): _____

12. PLACE OF USE

Legal description of place of use by 40 acre tract(s): See Attachment A.

13. STORAGE

Reservoir Name: _____ Storage Period: from _____ to _____
Capacity: _____ ac-ft. Inundated Area: _____ acres.
Height of dam: _____ feet.
Legal description of inundated area by 40 acre tract(s): _____

***************************THE FOLLOWING CHANGES ARE PROPOSED********************

14. QUANTITY OF WATER: _____ cfs and/or 20 ac-ft.

15. SOURCE: Pace Canyon Creek
Balance of the water will be abandoned: _____, or will be used as heretofore: X

16. COUNTY: Carbon

17. POINT(S) OF DIVERSION: Same as heretofore and additional points as listed on Attachment B.

Description of Diverting Works: Stream Diversion
*COMMON DESCRIPTION: _____

18. POINT(S) OF REDIVERSION

The water will be rediverted from _____ at a point: _____

Description of Diverting Works: _____

19. POINT(S) OF RETURN

The amount of water to be consumed is_____ cfs or_____ ac-ft.
The amount of water to be returned is_____ cfs or_____ ac-ft.
The water will be returned to the natural stream/source at a point(s):_____

20. NATURE AND PERIOD OF USE

Irrigation:	From___/___/___ to___/___/___
Stockwatering:	From___/___/___ to___/___/___
Domestic:	From___/___/___ to___/___/___
Municipal:	From___/___/___ to___/___/___
Mining:	From 05 / 15 / 08 to 12 / 31 / 08
Power:	From___/___/___ to___/___/___
Other:	From___/___/___ to___/___/___

21. PURPOSE AND EXTENT OF USE

Irrigation:_____ acres. Sole supply of_____ acres.
Stockwatering (number and kind):_____
Domestic:_____ Families and/or_____ Persons.
Municipal (name):_____
Mining: Dugout Canyon Mining District at the Dugout Mine.
Ores mined: Coal
Power: Plant name:_____ Type:_____ Capacity:_____
Other (describe): Dust suppression, fire protection and coal processing, coal mining and drilling

22. PLACE OF USE

Legal description of place of use by 40 acre tract(s): The same as heretofore plus lands described in Attachment C.

23. STORAGE

Reservoir Name:_____ Storage Period: from _____ to_____
Capacity:_____ ac-ft. Inundated Area:_____ acres.
Height of dam:_____ feet.
Legal description of inundated area by 40 acre tract(s):_____

24. EXPLANATORY

The following is set forth to define more clearly the full purpose of this application. Include any supplemental water rights used for the same purpose. (Use additional pages of same size if necessary): In addition to normal mining activities, dust suppression, fire protection and coal processing the applicant seeks to use water for a drilling program incidental to coal mining.

The undersigned hereby acknowledges that even though he/she/they may have been assisted in the preparation of the above-numbered application through the courtesy of the employees of the Division of Water Rights, all responsibility for the accuracy of the information contained herein, at the time of filing, rests with the applicant(s).

Signature of Applicant(s)
Canyon Fuel Company, LLC

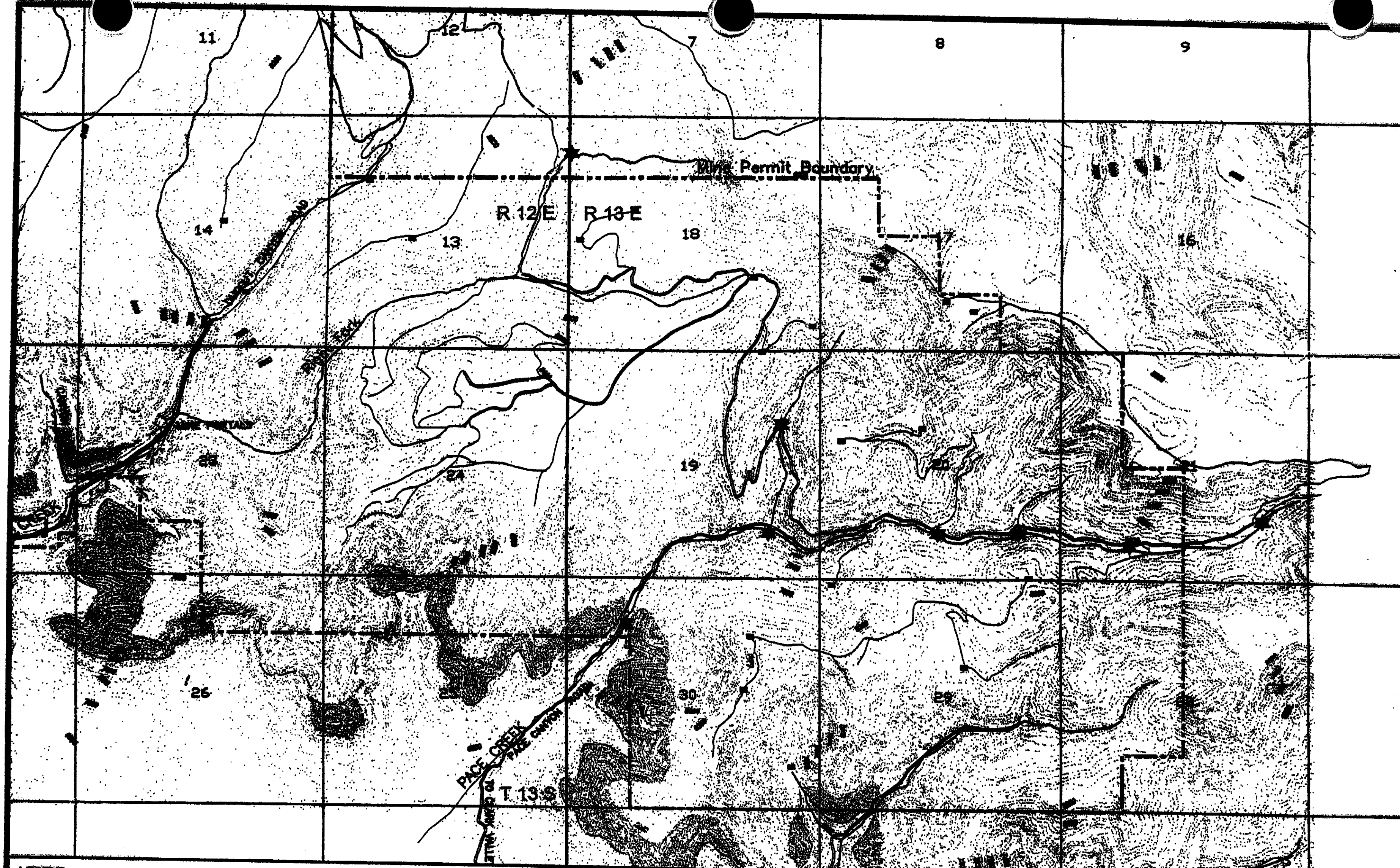
APPLICANT'S CERTIFICATION
Application for Temporary Change of Use
Number t_____

Canyon Fuel Company hereby acknowledges that this map attached to Temporary Change Application Number t_____, consisting of page number __b__, was prepared in support of Temporary Change Application t_____. It hereby submits this map as a true representation of the facts shown thereon to the best of its knowledge and belief.

Dated this 24th day of April, 2008.

CANYON FUEL COMPANY

_____



LEGEND

Scale: 1" = 3000'

- Mine Permit Boundary
- Existing Road
- Road to be Constructed
- Gilson Seam Outcrop
- Water Diversion Point
- Water Use Point (Also use for dust suppression on roads and cementing holes)

File: X:\Geology\Drilling Surface\2008 MDW & Expl Holes\Water Use\2008 Water Diversion & Use Map.dwg

Canyon Fuel Co., LLC.
Dugout Canyon Mine

Temporary Change Application Water Diversion and Use Map Water Right Number 91-409

P.O. BOX 1029
WELLINGTON, UTAH 84542

Date: April 23, 2008

Attachment A
Temporary Change Application WR# 91-409

Place of Use Heretofore:

1. SW1/4SW1/4, Sec. 9, T14S, R12E, SLB&M
2. NE1/4SE1/4, SE1/4SE1/4, Sec. 9, T14S, R12E, SLB&M
3. NE1/4NW1/4, SW1/4NW1/4, Sec. 10, T14S, R12E, SLB&M
4. NW1/4NE1/4, SW1/4NE1/4, SE1/4NE1/4, Sec. 10, T14S, R12E, SLB&M
5. SW1/4, Sec. 10, T14S, R12E, SLB&M
6. NE1/4NW1/4, SW1/4NW1/4, SW1/4NE1/4, Sec. 15, T14S, R12E, SLB&M
7. NW1/4SE1/4, SW1/4SE1/4, Sec.15, T14S, R12E, SLB&M
8. NW1/4NW1/4, NE1/4NW1/4, SW1/4NW1/4, Sec. 22, T14S, R12E, SLB&M

Attachment B
Temporary Change Application WR# 91-409

Proposed Point(s) of Diversion:

Same as heretofore and in addition -

1. N 1070 ft. W 1100 ft. from SE Corner, Sec. 19, T13S, R13E, SLBM
2. S 780 ft. E 25 ft. from NW Corner, Sec. 18, T13S, R13E, SLBM
3. N 1060 ft. E 2590 ft. from SW Corner, Sec. 20, T13S, R13E, SLBM
4. N 3500 ft. W 850 ft. from SE Corner, Sec.19, T13S, R13E, SLBM
5. N 1070 ft. W 900 ft. from SE Corner, Sec. 20, T13S, R13E, SLBM
6. N 1400 ft. W 960 ft. from SE Corner, Sec. 21, T13S, R13E, SLBM
7. S 1011 ft. E 1322 ft. from NW Corner, Sec. 30, T13S, R13E, SLBM
8. N 790 ft. E 1485 ft. from SW Corner, Sec. 21, T13S, R13E, SLBM

Attachment C
Temporary Change Application WR# 91-409

Proposed Place of Use:

Same as heretofore and in addition -

1. All of Sec. 13, T13S, R12E, SLB&M
2. All of Sec. 14, T13S, R12E, SLB&M
3. All of Sec. 17, T13S, R13E, SLB&M
4. All of Sec. 18, T13S, R13E, SLB&M
5. All of Sec. 19, T13S, R13E, SLB&M
6. All of Sec. 20, T13S, R13E, SLB&M
7. All of Sec. 21, T13S, R13E, SLB&M
8. All of Sec. 28, T13S, R13E, SLB&M
9. All of Sec. 29, T13S, R13E, SLB&M
10. All of Sec. 30, T13S, R13E, SLB&M

Also, dust suppression may be required along miscellaneous access roads in Section 16 of T13S, R13E, SLB&M.

APPLICATION FOR TEMPORARY CHANGE OF WATER

STATE OF UTAH

*Rec. by*_____

Fee Paid

$_____

For the purpose of obtaining permission to make a temporary change of water in the State of Utah, application is hereby made to the State Engineer, based upon the following showing of facts, submitted in accordance with the requirements of Section 73-3-3 Utah Code Annotated 1953, as amended.

*WATER RIGHT NO. 91 - 5024 *APPLICATION NO. t_____-_____-_____

Changes are proposed in (check those applicable)

_____ point of diversion. X place of use. X nature of use. X period of use.

1. **OWNER INFORMATION**
   Name: Canyon Fuel Company, LLC *Interest:_____%
   Address: City Place One, Suite 300
   City: St. Louis State: MO Zip Code: 63141

2. *PRIORITY OF CHANGE:_____ *FILING DATE:_____

3. RIGHT EVIDENCED BY: 91-23 & 491 (A5039) Cert. No. 1685

   Prior Approved Temporary Change Applications for this right:_____

**********HERETOFORE**********

4. QUANTITY OF WATER:_____ cfs and/or 245.00 ac-ft.
5. SOURCE: Dugout Canyon Creek
6. COUNTY: Carbon
7. POINT(S) OF DIVERSION: S 125 ft. E 2307 ft. from NW Corner, Sec. 23, T13S, R12E, SLBM

   Description of Diverting Works: Underground Well and pump system.

8. **POINT(S) OF REDIVERSION**
   The water has been rediverted from_____ at a point:_____

   Description of Diverting Works:_____

9. **POINT(S) OF RETURN**
   The amount of water consumed is _____ cfs or_____ ac-ft.
   The amount of water returned is_____ cfs or_____ ac-ft.
   The water has been returned to the natural stream/source at a point(s):_____

*These items are to be completed by the Division of Water Rights.

[redacted] *Temporary Change* [redacted]

10. **NATURE AND PERIOD OF USE**

Irrigation:	From_____	to_____
Stockwatering:	From_____	to_____
Domestic:	From_____	to_____
Municipal:	From_____	to_____
Mining:	From 01/01	to 12/31
Power:	From_____	to_____
Other:	From_____	to_____

11. **PURPOSE AND EXTENT OF USE**
Irrigation:_____ acres. Sole supply of_____ acres.
Stockwatering (number and kind):_____
Domestic:_____ Families and/or_____ Persons.
Municipal (name):_____
Mining: Dugout Canyon Mining District in the Dugout Mine.
Ores mined: Coal
Power: Plant name:_____ Type:_____ Capacity:_____
Other (describe): Dust suppression, fire protection and coal processing.

12. **PLACE OF USE**
Legal description of place of use by 40 acre tract(s): See Attachment A.

13. **STORAGE**
Reservoir Name: Mine Site Tank Storage Period: from 01/01 to 12/31
Capacity: 0.9 ac-ft. Inundated Area:_____acres.
Height of dam:_____ feet.
Legal description of inundated area by 40 acre tract(s):_____

**********THE FOLLOWING CHANGES ARE PROPOSED**********

14. **QUANTITY OF WATER:**_____ cfs and/or 12 ac-ft.

15. **SOURCE:** Dugout Canyon Creek
Balance of the water will be abandoned:_____, or will be used as heretofore: X

16. **COUNTY:** Carbon

17. **POINT(S) OF DIVERSION:** Same as heretofore.
Description of Diverting Works: Well.
*COMMON DESCRIPTION: NE of Wellington, Utah

18. **POINT(S) OF REDIVERSION**
The water will be rediverted from_____ at a point:_____
Description of Diverting Works:_____

19. POINT(S) OF RETURN

The amount of water to be consumed is_____ cfs or_____ ac-ft.
The amount of water to be returned is_____ cfs or_____ ac-ft.
The water will be returned to the natural stream/source at a point(s):_____

20. NATURE AND PERIOD OF USE

Irrigation:	From___/___/___ to___/___/___
Stockwatering:	From___/___/___ to___/___/___
Domestic:	From___/___/___ to___/___/___
Municipal:	From___/___/___ to___/___/___
Mining:	From 05 / 15 / 08 to 12 / 31 / 08
Power:	From___/___/___ to___/___/___
Other:	From___/___/___ to___/___/___

21. PURPOSE AND EXTENT OF USE

Irrigation:_____ acres. Sole supply of_____ acres.
Stockwatering (number and kind):_____
Domestic:_____ Families and/or_____ Persons.
Municipal (name):_____
Mining: Dugout Canyon Mining District at the Dugout Mine.
Ores mined: Coal
Power: Plant name:_____ Type:_____ Capacity:_____
Other (describe): Dust suppression, fire protection and coal processing, coal mining and drilling

22. PLACE OF USE

Legal description of place of use by 40 acre tract(s): The same as heretofore plus lands described in Attachment B.

23. STORAGE

Reservoir Name:_____ Storage Period: from _____ to_____
Capacity:_____ ac-ft. Inundated Area:_____ acres.
Height of dam:_____ feet.
Legal description of inundated area by 40 acre tract(s):_____

24. EXPLANATORY

The following is set forth to define more clearly the full purpose of this application. Include any supplemental water rights used for the same purpose. (Use additional pages of same size if necessary): In addition to normal mining activities, dust suppression, fire protection and coal processing the applicant seeks to use water for a drilling program incidental to coal mining.

The undersigned hereby acknowledges that even though he/she/they may have been assisted in the preparation of the above-numbered application through the courtesy of the employees of the Division of Water Rights, all responsibility for the accuracy of the information contained herein, at the time of filing, rests with the applicant(s).

Signature of Applicant(s)
Canyon Fuel Company, LLC

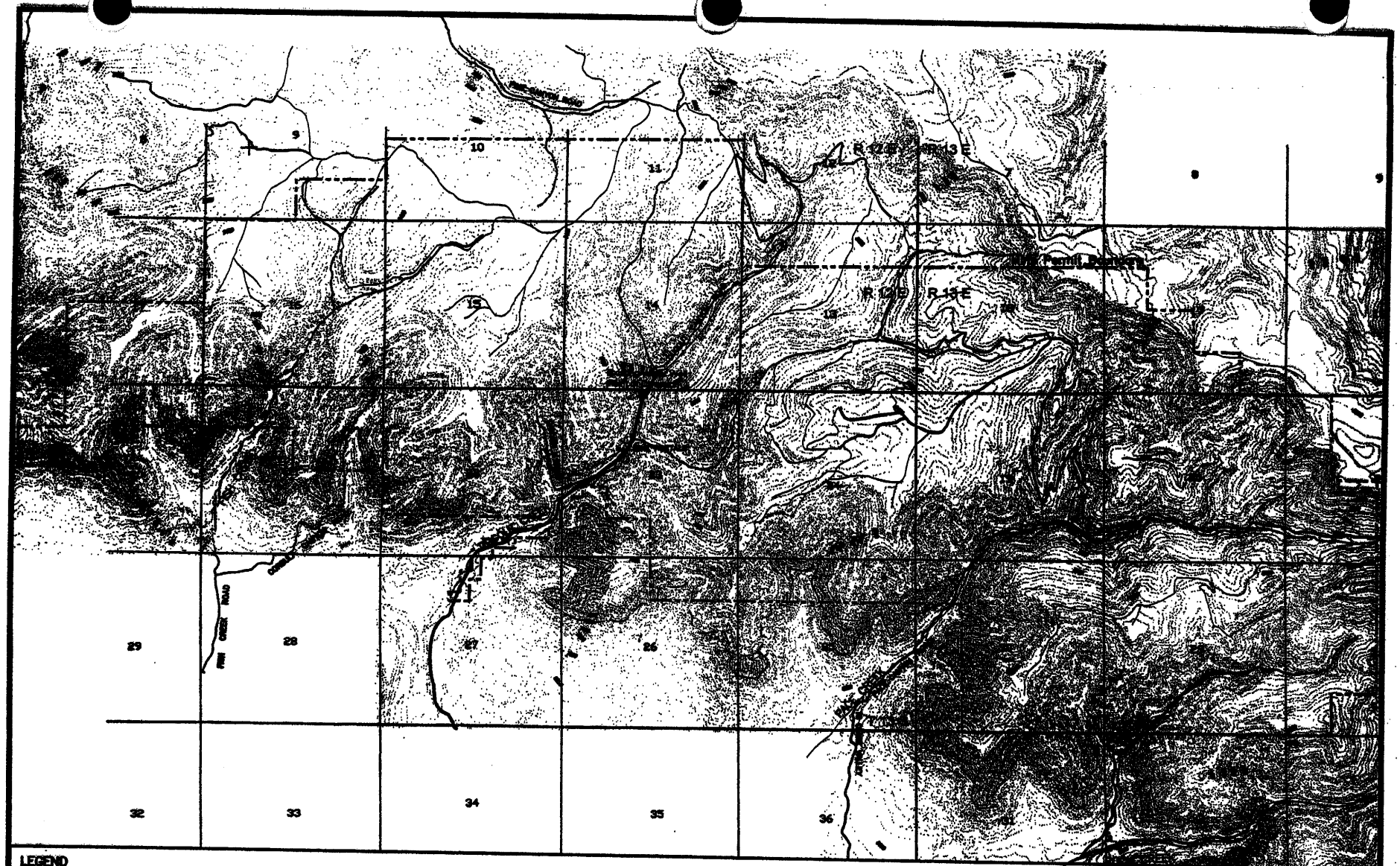
APPLICANT'S CERTIFICATION
Application for Temporary Change of Use
Number t_____

Canyon Fuel Company hereby acknowledges that this map attached to Temporary Change Application Number t_____, consisting of page number 10, was prepared in support of Temporary Change Application t_____. It hereby submits this map as a true representation of the facts shown thereon to the best of its knowledge and belief.

Dated this 24th day of APRIL, 2008.

CANYON FUEL COMPANY

D E D Carlie



LEGEND

Scale: 1" = 4000'

- Mine Permit Boundary
- Existing Road
- Road to be Constructed
- Gilson Seam Outcrop
- Water Diversion Point

File: X:\Geology\Drilling Surface\2008 MDW & Expl Holes\Water Use\2008 Water Diversion & Use Map.dwg

Canyon Fuel Co., LLC.

Dugout Canyon Mine

Temporary Change Application
Water Diversion and Use Map
Water Right Number 91-5024

P.O. BOX 1029
WELLINGTON, UTAH 84542

Date: April 23, 2008

Attachment A
Temporary Change Application WR # 91-5024

Place of Use Heretofore:

1. SW1/4SE1/4; SE1/4SE1/4; Sec. 9, T13S, R12E, SLBM.

2. SW1/4; SE1/4; Sec. 10, T13S, R12E, SLBM.

4. SW1/4; SE1/4; Sec. 11, T13S, R12E, SLBM.

5. All of Sec. 13, T13S, R12E, SLBM

6. All of Sec. 14, T13S, R12E, SLBM.

7. All of Sec. 15, T13S, R12E, SLBM.

8. All of Sec. 16, T13S, R12E, SLBM.

9. NE1/4SW1/4; SE1/4SW1/4; SE1/4; Sec. 17, T13S, R12E, SLBM.

10. NE1/4NW1/4; SW1/4NW1/4; SE1/4NW1/4; Sec. 20, T13S, R12E, SLBM.

11. NW1/4NE1/4; NE1/4NE1/4; Sec. 20, T13S, R12E, SLBM.

12. NW1/4NW1/4; NE1/4NW1/4; NE1/4; Sec. 21, T13S, R12E, SLBM.

13. NW1/4; NE1/4; NW1/4SW1/4; NE1/4SW1/4; NW1/4SE1/4; NE1/4SE1/4; Sec. 22, T13S, R12E, SLBM.

14. NW1/4; NW1/4NE1/4; SW1/4NE1/4; Sec. 23, T13S, R12E, SLBM.

15. All of Sec. 24, T13S, R13E, SLB&M

16. All of Sec. 27, T13S, R13E, SLB&M

Attachment B
Temporary Change Application WR# 91-5024

Proposed Place of Use:

Same as heretofore and in addition -

1. All of Sec. 13, T13S, R12E, SLB&M
2. All of Sec. 14, T13S, R12E, SLB&M
3. All of Sec. 17, T13S, R13E, SLB&M
4. All of Sec. 18, T13S, R13E, SLB&M
5. All of Sec. 19, T13S, R13E, SLB&M
6. All of Sec. 20, T13S, R13E, SLB&M
7. All of Sec. 21, T13S, R13E, SLB&M
8. All of Sec. 28, T13S, R13E, SLB&M
9. All of Sec. 29, T13S, R13E, SLB&M
10. All of Sec. 30, T13S, R13E, SLB&M

Also, dust suppression may be required along miscellaneous access roads in Section 16 of T13S, R13E, SLB&M.